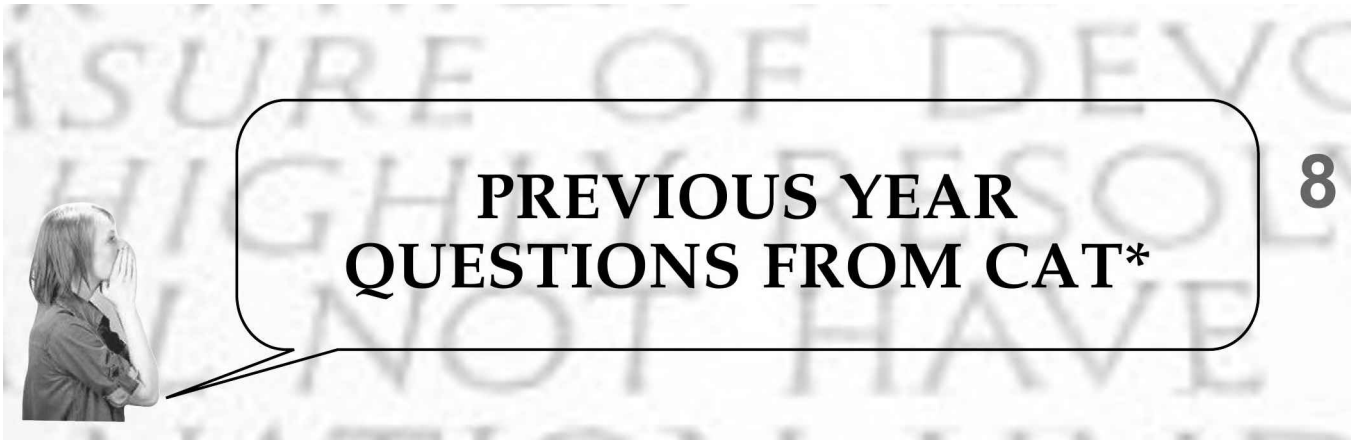

PREVIOUS YEAR QUESTIONS FROM CAT*

8

Given below are a set of original reading comprehension questions from previous year CAT papers. Readers are advised to attempt on these papers only after going through the theory portion of the book.

I

Directions for Questions 1 to 30: *Each of the six passages given below is followed by questions. Choose the best answers for each question.*

Passage 1 (Total Words—632) (CAT 2001)

The union government's present position vis-à-vis the upcoming United Nations conference on racial and related discrimination world-wide seems to be the following: discuss race please, not caste; caste is our very own and not at all bad as you think. The gross hypocrisy of that position has been lucidly underscored by *Kancha Ilaiah.* Explicitly, the world community is to be cheated out of considering the matter on the technicality that caste is not, as a concept, tantamount to a racial category. Internally, however, allowing the issue to be put on agenda at the said conference would, we are patriotically admonished, damage the country's image. Somehow, India's virtual beliefs elbow out concrete actualities. Inverted representations, as we know, have often been deployed in human histories as balm for the forsaken—religion being the most persistent of such inversions. Yet, we would humbly submit that if globalizing our markets are thought good for the 'national' pocket, globalizing our social inequities might not be so bad for the mass of our people. After all, racism was uniquely institutionalized in South Africa as caste discrimination has been with in our society: why then can't we permit the world community to express itself on the latter with a fraction of the zeal with which, through the years, we pronounced on the former?

As to the technicality about whether or not caste is admissible into an agenda about race (that the conference is also about 'related discriminations' tends to be forgotten), a reputed sociologist has recently argued that where race is a 'biological' construct, caste is a 'social' one. Having earlier fiercely opposed implementation of the Mandal Commission Report, the said sociologist is at least to be complemented now for admitting, however tangentially, that caste discrimination is a reality, although, in his view, incompatible with racial discrimination. One would like quickly to offer the hypothesis that biology, in important ways that affect the lives of many millions, is in itself perhaps a social construction. But let us look at the matter in another way.

If it is agreed—as per the position today at which anthropological and allied scientific determinations rest—that the entire race of *homo sapiens* derived from an originary black African female (called 'Eve') then one is hard put to understand how, on some subsequent ground, ontological distinctions are to be drawn either between races or castes. Let us also underline the distinction between the supposition that we are all god's children and the rather more substantiated argument about our descent from 'Eve', lest both positions are thought to be equally diversionary. It then stands to reason that all subsequent distinctions are, in modern parlance, 'constructed' ones, and, like all ideological constructions, attributable to changing equations between knowledge and power among human communities through contested histories here, there, and elsewhere.

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* The questions in this section have been complied from CAT papers till 2005. The 2006, 2007 and 2008 CAT papers have been provided with explanatory answers as a separate section at the end of the book.

This line of thought receives, thankfully, extremely consequential buttress from the findings of the Human Genome project. Contrary to earlier (chiefly 19th century colonial) persuasions on the subject of race, as well as, one might add, the somewhat infamous Jensen offerings in the 20th century from America, those findings deny genetic difference between 'races'. If anything, they suggest that environmental factors impinge on gene-function, as dialectic seems to unfold between nature and culture. It would thus seem that 'biology' as the constitution of pigmentation enters the picture first only as a part of that dialectic. Taken together, the originary mother stipulation and the Genome findings ought indeed to furnish ground for human equality across the board, as well as yield policy initiatives towards equitable material dispensations aimed at building a global order where, in Hegel's stirring formulation, only the rational constitutes the right. Such, sadly, is not the case as everyday, fresh arbitrary grounds for discrimination are constructed in the interests of sectional dominance.

1. When the author writes 'globalizing our social inequities", the reference is to:
   (a) going beyond an internal deliberation of social inequity.
   (b) dealing with internal poverty through the economic benefits of globalization.
   (c) going beyond an internal delimitation of social inequity.
   (d) achieving disadvantaged people's empowerment, globally.
2. According to the author, 'inverted representations as balm for the forsaken;
   (a) is good for the forsaken and often deployed in human histories.
   (b) is good for the forsaken, but not often deployed historically for the oppressed.
   (c) occurs often as a means of keeping people oppressed.
   (d) occurs often to invert the status quo.
3. Based on the passage, which broad areas unambiguously fall under the purview of the UN conference being discussed?
   (A) Racial prejudice
   (B) Racial pride.
   (C) Discrimination, racial or otherwise.
   (D) caste-related discrimination.
   (E) Race-related discrimination.
   (a) A, E
   (b) C, E
   (c) A, C, E
   (d) B, C, D
4. According to the author, the sociologist who argued that race is a 'biological' construct and caste is a 'social' one:
   (a) generally shares the same orientation as the author's on many of the central issues discussed.
   (b) tangentially admits to the existence of "caste" as a category.
   (c) admits the incompatibility between the people of different race and caste.
   (d) admits indirectly, that both caste-based prejudice and racial discrimination exist.
5. An important message in the passage, if one accepts a dialectic between nature and culture, is that:
   (a) the results of the Human Genome Project reinforces racial differences.
   (b) race is at least partially, a social construct.
   (c) discrimination is at lest partially, a social construct.
   (d) caste is at least partially, a social construct.

Passage 2 (Total Word—652) (CAT 2001)

Studies of the factors governing reading development in young children have achieved remarkable degree of consensus over the past two decades. This consensus concerns the casual role of phonological skills in young children's reading progress. Children, who have good phonological skills, or good "phonological awareness", become good readers and good spellers. Children with poor phonological skills progress more poorly. In particular, those who have a specific phonological deficit are likely to be classified as dyslexic by the time that they are 9 or 10 years old.

Phonological skills in young children can be measured at a number of different levels. The term phonological awareness is a global one, and refers to a deficit in recognizing smaller units of sound within spoken words. Development work has shown that this deficit can be at the

level of syllables, of onsets and rimes, or of phonemes. For example, a 4-year old child might have difficulty in recognizing that a word like valentine has three syllables, suggesting a lack of syllabic awareness. A 5-years old might have difficulty in recognizing that the odd word out in the set of words fan, cat, hat, mat is fan. This task requires an awareness of the sub-syllabic units of the onset and the rime. The onset corresponds to any initial consonants in a syllable, and the rime corresponds to the vowel and to any following consonants. Rimes correspond to rhyme in single-syllable words, and so the rime in fan differs from the rime in cat, hat and mat. In longer words, rime and rhyme may differ. The onsets in val: en: tine are/v/and/t/, and the rimes correspond to the spelling patterns 'al', 'en', and 'ine'.

A 6-year-old might have difficulty in recognizing that plea and pray begin with the same initial sound. This is a phonemic judgment. Although the initial phoneme /P/ is shared between the two words, in plea it is part of the onset 'pl', and in pray it is part of the onset 'pr'. Until children can segment the onset (or the rime), such phonemic judgments are difficult for them to make. In fact, a recent survey of different developmental studies has shown that the different levels of phonological awareness appear to emerge sequentially. The awareness of syllables, onsets, and rimes appears to emerge at around the ages of 3 and 4, long before most children go to school. The awareness of phonemes, on the other hand, usually emerges at around the age of 5 or 6, when children have been taught to read for about a year. An awareness of onsets and rimes thus appears to be a precursor of reading, whereas an awareness of phonemes at every serial position in a word, only appears to develop as reading is taught. The onset-rime and phonemic levels of phonological structure, however, are not distinct. Many onsets in English are single phonemes, and so are some rimes (e.g., sea, go, zoo).

The early availability of onsets and rimes is supported by studies that have compared the development of phonological awareness of onsets, rimes, and phonemes in the same subjects using the same phonological awareness tasks. For example, a study by Treiman and Zudowski used a same/different judgment task based on the beginning or the end sounds of words. In the beginning sound task, the words either began with the same onset, as in plea and plank, or shared only the initial phoneme, as in plea and pray. In the end sound task, the words either shared the entire rime, as in spit and wit, or shared only the final phoneme, as in rat and wit. Treiman and Zudowski showed that 4-and 5-year old children found the onset-rime version of the same/different task significantly easier than the version based on phonemes. Only the 6-year old, who had been learning to read for about a year, were able to perform both versions of the tasks with equal levels of success.

6. From the following statements, pick out the true statement according to the passage:
   (a) A mono-syllabic word can have only one onset.
   (b) A mono-syllabic word can have only one rhyme but more than one rime.
   (c) A mono-syllabic word can have only one phoneme.
   (d) All of the above.
7. Which one of the following is likely to emerge last in the cognitive development of a child?
   1. Rhyme
   2. Rime
   3. Onset
   4. Phoneme.
8. A phonological deficit in which of the following is likely to be classified as dyslexia?
   (a) Phonemic judgment
   (b) Onset judgment.
   (c) Rime judgment
   (d) Any one or more of the above.
9. The Treiman and Zudowski experiment found evidence to support the following:
   (a) At age 6, reading instruction helps children perform both, the same-different judgment task.
   (b) The development of onset-rime awareness precedes the development of an awareness of phonemes.
   (c) At age 4–5, children find the onset-rime version of the same/different task significantly easier.
   (d) The development of onset-time awareness is a necessary and sufficient condition for the development of an awareness of phonemes.
10. The single-syllable words Rhyme and Rime are constituted by the exact same set of:
   I. rime(s)
   II. onset(s).
   III. rhyme(s)
   IV. phonemes(s)

(a) I, II
(b) I, III
(c) I, II, III
(d) II, III, IV

Passage 3 (Total Words—653) (CAT 2001)

Billie Holiday died a few weeks ago. I have been unable until now to write about her, but since she will survive many who receive longer obituaries, a short delay in one small appreciation will not harm her or us. When she died we—the musicians, critics, all who were ever transfixed by the most heart-rending voice of the past generation—grieved bitterly. There was no reason to. Few people pursued self-destruction more whole-heartedly than she, and when the pursuit was at an end, at the age of forty-four, she had turned herself into a physical and artistic wreck. Some of us tried gallantly to pretend otherwise, taking comfort in the occasional moments when she still sounded like a ravaged echo of her greatness. Others had not even the heart to see and listen any more. We preferred to stay home and, if old and lucky enough to own the incomparable records of her heyday from 1937 to 1946, many of which are not even available on British LP, to recreate those coarse-textured, sinuous, sensual and unbearable sad noises which gave her a sure corner of immortality. Her physical death called, if anything, for relief rather than sorrow. What sort of middle age would she have faced without the voice to earn money for her drinks and fixes, without the looks—and in her day she was hauntingly beautiful—to attract the men she needed, without business sense, without anything but the disinterested worship of ageing men who had heard and seen her in her glory?

And yet, irrational though it is, our grief expressed Billie Holiday's art—that of a woman for whom one must be sorry. The great blues singers, to whom she may be justly compared, played their game from strength. Lionesses, though often wounded or at bay (did not Bessie Smith call herself 'a tiger, ready to jump'?), their tragic equivalents were Cleopatra and Phaedra; Holiday's was an embittered Ophelia. She was the Puccini heroine among blues singers, or rather among jazz singers. For though she sang a cabaret version of the blues incomparably, her natural idiom was the op song. Her unique achievement was to have twisted this into a genuine expression of the major passions by means of a total disregard of its sugary tunes, or indeed of any tune other than her own few delicately crying elongated notes, phrased like Bessie Smith or Louis Armstrong in sackcloth, sung in a thin, gritty, haunting voice whose natural mood was an unresigned and voluptuous welcome for the pains of love. Nobody has sung, or will sing, Bess's songs from porgy as she did. It was this combination of bitterness and physical submission, as of someone lying still while watching his legs being amputated, which give such a blood-curdling quality to her Strange Fruit, the anti-lynching poem which she turned into an unforgettable art song. Suffering was her profession; but she did not accept it.

Little need be said about her horrifying life, which she described with emotional, though hardly with factual, truth in her autobiography Lady sings the Blues. After an adolescence in which self-respect was measured by a girl's insistence on picking up the coins thrown to her by clients with her hands, she was plainly beyond help. She did not lack it, for she had the flair and scrupulous honesty of John Hammond to launch her, the best musicians of the 1930s to accompany her—notably Teddy Wilson, Frankie Newton and Lester Young—the boundless devotion of all serious connoisseurs, and much public success. It was too late to arrest a career of systematic embittered self-immolation. But, while she destroyed herself, she sang, unmelodious, profound and heartbreaking. It is impossible not to weep for her, or not to hate the world, which made her what she was.

11. Why will Billie Holiday survive many who receive longer obituaries?
    (a) Because of her blues creations.
    (b) Because she was not as self-destructive as some other blues exponents.
    (c) Because of her smooth and mellow voice.
    (d) Because of the expressions of anger in her songs.
12. According to the author, if Billie Holiday had not died in her middle age:
    (a) she would have gone on to make a further mark.
    (b) she would have become even richer than she was when she died.
    (c) she would have led a rather ravaged existence.
    (d) she would have led a rather comfortable existence.
13. Which of the following statements is not representative of the author's opinion?
    (a) Billie Holiday had her unique brand of melody.
    (b) Billie Holiday's voice can be compared to other singers in certain ways.

(c) Billie Holiday's voice had a ring of profound sorrow.

(d) Billie Holiday was suffering in her profession and in her life.

14. According to the passage, Billie Holiday was fortunate in all but one of the following ways:

(a) she was fortunate to have been picked up young by an honest producer.

(b) she was fortunate to have the likes of Louis Armstrong and Bessie Smith accompany her.

(c) she was fortunate to possess the looks.

(d) she enjoyed success among the public and the connoisseurs.

Passage 4 (Total Words—880) (CAT 2001)

The narrative of Dersu Uzala is divided into two major sections, set in 1902 and 1907 that deal with separate expeditions, which Arseniev conducts into the Ussuri region. In addition, a third time frame forms a prologue to the film. Each of the temporal frames has a different focus, and by shifting them, Kurosawa is able to describe the encroachment of settlements upon the wilderness and the consequent erosion of Dersu's way of life. As the film opens, that erosion has already begun. The first image is a long shot of a huge forest; the trees piled upon one another by the effects of the telephoto lens so that the landscape becomes an abstraction and appears like a huge curtain of green. A title informs us that the year is 1910. This is as late into the century as Kurosawa will go. After this prologue, the events of the film will transpire even further back in time and will be presented as Arseniev's recollections. The character of Dersu Uzala is heart of the film, his life the example that Kurosawa wishes to affirm. Yet the formal organization of the film works to contain, to close, to circumscribe that life by erecting a series of obstacles around it. The film itself is circular, opening and closing by Dersu's grave, thus sealing off the character from the modern world to which Kurosawa once so desperately wanted to speak. The multiple time frames also work to maintain a separation between Dersu and the contemporary world. We must go back farther even than 1910 to discover who he was. But this narrative structure has yet another implication. It safeguards Dersu's example, inoculates it from contamination with history, and protects it from contact with the industrialized, urban world. Time is organized by the narrative into a series of barriers, which enclose Dersu in a kind of vacuum chamber, protecting him from the social and historical dialectics that destroyed the other Kurosawa heroes. Within the film, Dersu does die. But the narrative structure attempts to immortalize him and his example, as Dersu passes from history into myth.

We see all this at work in the enormously evocative prologue. The camera tilts down to reveal felled trees littering the landscape and an abundance of construction. Roads and houses outline the settlement that is being built. Kurosawa cuts to a medium shot of Arseniev standing in the midst of the clearing, looking uncomfortable and disoriented. A man passing in a wagon asks him what he is doing, and the explorer says he is looking for a grave. The driver replies that no one has died here, the settlement is too recent. These words enunciate the temporal rupture that the film studies. It is the beginning of things (industrial society) and the end of things (the forest), the commencement of one world so young that no one has had time yet to die and the eclipse of another, in which Dersu has died. It is his grave for which the explorer searches. His passing symbolizes the new order, the development that now surrounds Arseniev. The explorer says he buried his friend three years ago, next to huge cedar and fir trees, but now they are all gone. The man on the wagon replies they were probably chopped down when the settlement was built, and he drives off. Arseniev walks to a barren, treeless spot next to a pile of bricks. As he moves, the camera tracks and pans to follow, revealing a line of freshly built houses and a woman hanging her laundry to dry. A distant train whistle is heard, and the sounds of construction in the clearing vie with the cries of birds and the rustle of wind in the trees. Arseniev pauses, looks around for the grave that 1902, and the first section of the film commences, which describes Arseniev's meeting with Dersu and their friendship.

Kurosawa defines the world of the film initially upon a void, a missing presence. The grave is gone, brushed aside by a world rushing into modernism, and now the hunter exists only in Arseniev's memories. The hallucinatory dreams and visions of Dodeskaden are succeeded by nostalgic, melancholy ruminations. Yet by exploring these ruminations, the film celebrates the timelessness of Dersu's wisdom. The first section of the film has two purposes: to describe the magnificence and inhuman vastness of nature and to delineate the code of ethics by which Dersu lives and which permits him to survive in these conditions. When Dersu first appears, the other soldiers treat him with

condescension and laughter, but Arseniev watches him closely and does not share their derisive response. Unlike them, he is capable of immediately grasping Dersu's extraordinary qualities. In camp, Kurosawa frames Arseniev by himself, sitting on the other side of the fire from his soldiers. While they sleep or joke among themselves, he writes in his diary and Kurosawa cuts in several point-of-view shots from his perspective of trees that appear animated and sinister as the fire light dances across their gnarled, leafless outlines. This reflective dimension, this sensitivity of the spirituality of nature, distinguishes him from the other and forms the basis of his receptivity to Dersu and their friendship. It makes him a fit pupil for the hunter.

15. How is Kurosawa able to show the erosion of Dersu's way of life?
    (a) By documenting the ebb and flow of modernization.
    (b) By going back farther and farther in time.
    (c) By using three different time frames and shifting them.
    (d) Through his death in a distant time.
16. Arseniev's search for Dersu's grave:
    (a) is part of the beginning of the film.
    (b) symbolises the end of industrial society.
    (c) is misguided since the settlement is too new.
    (d) symbolises the rediscovery of modernity.
17. The film celebrates Dersu's wisdom:
    (a) by exhibiting the moral vacuum of the pre-modern world.
    (b) by turning him into a mythical figure.
    (c) through hallucinatory dreams and visions.
    (d) through Arseniev's nostalgic, melancholy ruminations.
18. According to the author, the selection of the film following the prologue:
    (a) serves to highlight the difficulties that Dersu faces that eventually kills him.
    (b) shows the difference in thinking between Arseniev and Dersu.
    (c) shows the code by which Dersu lives that allows him to survive his surroundings.
    (d) serves to criticize the lack of understanding of nature in the pre-modern era.
19. In the film, Kurosawa hints at Arseniev's reflective and sensitive nature:
    (a) by showing him as not being derisive towards Dersu, unlike other soldiers.
    (b) by showing him as being aloof from other soldiers.
    (c) through shots of Arseniev writing his diary, framed by trees.
    (d) All of the above.
20. According to the author, which of these statements about the film are correct?
    (a) The film makes its arguments circuitously.
    (b) The film highlights the insularity of Arseniev.
    (c) The film begins with the absence of its main protagonist.
    (d) None of these.

Passage 5 (Total Words—925) (CAT 2001)

Democracy rests on a tension between two different principles. There is, on the one hand, the principle of equality before the law, or, more generally, of equality, and, on the other, what may be described as the leadership principle. The first gives priority to rules and the second to persons. No matter how skillfully we contrive our schemes; there is a point beyond which the one principle cannot be promoted without some sacrifice of the other.

Alexis de Tocqueville, the great nineteenth century writer on democracy, maintained that the age of democracy, whose birth he was witnessing, would be the age of mediocrity: in saying this he was thinking primarily of a regime of equality governed by impersonal rules. Despite his strong attachment to democracy, he took great pains to point out what he believed to be its negative side: a dead level plane of achievement in practically every sphere of life. The age of democracy would, in his view, be an unheroic age; there would not be room in it for either heroes or hero-worshippers.

But modern democracies have not been able to do without heroes: this too was foreseen, with much misgiving, by Tocqueville. Tocqueville viewed this with misgiving because he believed, rightly or wrongly, that unlike in aristocratic societies, there was no proper place in a democracy for heroes and, hence, when they arose, they would sooner or later turn into despots. Whether they require heroes or not, democracies certainly require

leaders, and, in the contemporary age, breed them in great profusion; the problem is to know what to do with them.

In a world preoccupied with scientific rationality, the advantages of a system based on an impersonal rule of law should be a recommendation with everybody. There is something orderly and predictable about such a system. When life is lived mainly in small, self-contained communities, men are able to take finer personal distinctions into account in dealing with their fellow men. They're unable to do this in a large and amorphous society, and organized living would be impossible here without a system of impersonal rules. Above all, such a system guarantees a kind of equality to the extent that everybody, no matter in what station of life, is bound by the same explicit, often written, rules, and nobody is above them.

But a system governed solely by impersonal rules can at best ensure order and stability; it cannot create any shining vision of a future in which mere formal equality will be replaced by real equality and fellowship. A world governed by impersonal rules cannot easily change itself, or when it does, the change is so gradual as to make the basic and fundamental feature of society appear unchanged. For any kind of basic or fundamental change, a push is needed from within, a kind of individual initiative which will create new rules, new terms and conditions of file.

The issue of leadership thus acquired crucial significance in the context of change. If the modern age is preoccupied with scientific rationality, it is no less preoccupied with change. To accept what exists on its terms is traditional, not modern, and it may be all very well to appreciate tradition in music, dance and drama, but for society as a whole, the choice has already been made in favour of modernization and development. Moreover, in some countries, the gap between ideal and reality has become so great that the argument of development and change is now irresistible.

In these countries no argument for development has greater appeal or urgency than the one which shows development to be the condition for the mitigation, it not the elimination, of inequality. There is something contradictory about the very presence of large inequalities in a society which professes to be democratic. It does not take people too long to realize that democracy by itself can guarantee only formal equality; beyond this, it can only whet people's appetite for real or substantive equality. From this arises continued preoccupation with plans and schemes that will help to bridge the gap between the ideal of equality and the reality which is so contrary to it.

When pre-existing rules give no clear directions of change, leadership comes into its own. Every democracy invests its leadership with a measure of charisma, and expects from it a corresponding measure of energy and vitality. Now, the greater the urge for change in a society, the stronger the appeal of a dynamic leadership in it. A dynamic leadership seeks to free itself from the constraints of existing rules; in a sense that is the test of its dynamism. In this process, it may take a turn at which it ceases to regard itself as being bound by these rules, placing itself above them. There is always a tension between 'charisma' and 'discipline' and in the case of a democratic leadership, puts forward revolutionary claims, the tension tends to be resolved at the expense of discipline.

Characteristically, the legitimacy of such a leadership rests on its claim to be able to abolish or at least substantially reduce the existing inequalities in society. From the argument that formal equality or equality before the law is but a limited good, it is often one short step to the argument that it is a hindrance or an obstacle to the establishment of real or substantive equality. The conflict between a 'progressive' executive and a 'conservative' judiciary is but one aspect of this larger problem. This conflict naturally acquires added piquancy when the executive is elected and the judiciary appointed.

21. Dynamic leaders are needed in democracies because:
    (a) they have adopted the principles of 'formal' equality rather than 'substantive' equality.
    (b) 'formal' equality whets people's appetite for 'substantive' equality.
    (c) systems that rely on the impersonal rules of 'formal' equality lose their ability to make large changes.
    (d) of the conflict between a 'progressive' executive and a 'conservative' judiciary.
22. What possible factor would a dynamic leader consider a 'hindrance' in achieving the development goals of a nation?
    (a) Principle of equality before the law.
    (b) Judicial activism
    (c) A conservative judiciary.
    (d) Need for discipline.
23. Which of the following four statements can be inferred from the above passage?
    I. Scientific rationality is an essential feature of modernity.

II. Scientific rationality results in the development of impersonal rules.
III. Modernisation and development have been chosen over traditional music, dance and drama.
IV. Democracies aspire to achieve substantive equality.

(a) I, II, III but not III
(b) I, IV but not II, III
(c) I, II but not III, IV
(d) I, II, III but not IV

24. Tocqueville believed that the age of democracy would be an un-heroic age because:
(a) Democratic principles do not encourage heroes.
(b) There is no urgency for development in democratic countries.
(c) Heroes that emerged in democracies would become despots.
(d) Aristocratic society has a greater ability to produce heroes.

25. A key argument the author is making is that:
(a) in the context of extreme inequality, the issue of leadership has limited significance.
(b) democracy is incapable of eradicating inequality.
(c) formal equality facilitates development and change.
(d) impersonal rules are good for avoiding instability but fall short of achieving real equality.

26. Which of the following four statements can be inferred from the above passage?
I. There is conflict between the pursuit of equality and individuality.
II. The disadvantages of impersonal rules can be overcome in small communities.
III. Despite limitations, impersonal rules are essential in large systems.
IV. Inspired leadership, rather than plans and schemes, is more effective in bridging inequality.

(a) II, IV but not I, III
(b) I, II but not III, IV
(c) I, IV but not II, III
(d) I, IV but not II, IV

Passage 6 (Total Words—620) (CAT 2001)

In the modern scientific story, light was created not once but twice. The first time was in the Big Bang, when the universe began its existence as a glowing, expanding fireball, which cooled off into darkness after a few million years. The second time was hundreds of millions of years later, when the cold material condensed into dense nuggets under the influence of gravity, and ignited to become the first stars.

Sir Martin Rees, Britain's astronomer royal, named the longer interval between these two enlightenments, the cosmic "Dark Age". The name describes not only the poorly lit conditions, but also the ignorance of astronomers about that period. Nobody knows exactly when the first stars formed, or how they organized themselves into galaxies—or even whether stars were the first luminous objects. They may have been preceded by quasars, which are mysterious, bright spots found at the centers of some galaxies.

Now, two independent groups of astronomers, one led by Robert Becker of the University of California, Davis, and the other by George Djorgovski of the Caltech, claim to have peered far enough into space with their telescopes (and therefore backwards enough in time) to observe the closing days of the Dark Age.

The main problem that plagued previous efforts to study the Dark Age was not the lack of suitable telescopes, but rather the lack of suitable things at which to point them. Because these events took place over 13 billion years ago, if astronomers are to have any hope of unraveling them, they must study objects that are at least 13 billion light years away. The best prospectuses are quasars, because they are so bright and compact that they can be seen across vast stretches of space. The energy source that powers a quasar is unknown, although it is suspected to be the intense gravity of a giant black hole. However, at the distances required for the study of Dark Age, even quasars are extremely rare and faint.

Recently, some members of Dr. Becker's team announced their discovery of the four most distant quasars known. All the new quasars are terribly faint, a challenge that both teams overcame by peering at them through one of the twin Keck telescopes in Hawaii. These are the world's largest, and can therefore collect the most light. Dr. Becker's team analysed the light from all four quasars. Three of them appeared to be similar to ordinary, less

distant quasars. However, the fourth and most distant, unlike any other quasar ever seen, showed unmistakable signs of being shrouded in a fog of hydrogen gas. This gas is leftover material from the Big Bang that did not condense into stars or quasars. It acts like fog because new born stars and quasars emit mainly ultraviolet light, and hydrogen gas is opaque to ultravioletlight. Seeing this fog had been the goal of would-be Dark Age astronomers since 1965, when James Gunn and Bruce Peterson spelled out the technique for using quasars as backlighting beacons to observe the fog's ultraviolet shadow.

The fog prolonged the period of darkness until the heat from the first stars and quasars had the chance to ionize hydrogen (breaking it into its constituent parts, protons and electrons). Ionised hydrogen is transparent to ultraviolet radiation, so at that moment the fog lifted and the universe became the well-lit place it is today. For this reason, the end of the Dark Age is called the "Epoch of Re-ionisation". Because the ultraviolet shadow is visible only in the most distant of the four quasars, Dr. Becker's team concluded that the fog had dissipated completely by the time the universe was about 900 million years old, and one-seventh of its current size.

27. In the passage, the Dark Age refers to:
    (a) the period when the universe became cold after the Big Bang.
    (b) a period about which astronomers know very little.
    (c) the medieval period when cultural activity seemed to have come to an end.
    (d) the time that the universe took to heat up after the Big Bang.
28. Astronomers find it difficult to study the Dark Age because:
    (a) suitable telescopes are few.
    (b) the associated events took place aeons ago.
    (c) the energy source that powers a quasar is unknown.
    (d) their best chance is to study quasars, which are faint objects to begin with.
29. The four most distant quasars discovered recently:
    (a) could only be seen with the help of large telescopes.
    (b) appear to be similar to other, ordinary quasars.
    (c) appear to be shrouded in a fog of hydrogen gas.
    (d) have been sought to be discovered by Dark Age astronomers since 1965.
30. The fog of hydrogen gas seen through the telescopes:
    (a) is transparent to hydrogen radiation from stars and quasars in all states.
    (b) was lifted after heat from stars and quasars ionised it.
    (c) is material which eventually becomes stars and quasars.
    (d) is broken into constituent elements when stars and quasars are formed.

II

Passage 1 (Total Words—884) (CAT 1999)

The World Trade Organisation (WTO) was created in the early 1990s as a component of the Uruguay Round negotiation. However; it could have been negotiated as part of the Tokyo Round of the 1970s, since that negotiation was an attempt at a 'constitutional reform' of the General Agreement on Tariffs and Trade (GATT). Or it could have been put off to the future, as the US government wanted. What factors led to the creation of the WTO in the early 1990s?

One factor was the pattern of multilateral bargaining that developed late in the Uruguay Round. Like all complex international agreements, the WTO was a product of a series of trade-offs between the principal actors and groups. For the United States, which did not want a new organization, the dispute settlement part of the WTO package achieved its longstanding goal of a more effective and more legal dispute settlement system. For the Europeans, who by the 1990s had come to view GATT dispute settlement less in political terms and more as a regime of legal obligations, the WTO package was acceptable as a means to discipline the resort to unilateral measures by the United States. Countries like Canada and other middle and smaller trading partners were attracted by the expansion of a rules-based system and by the symbolic value of a trade organization, both of which inherently support the weak against the strong. The developing countries were attracted due to the provisions banning unilateral measures. Finally, and perhaps most important, many countries at the Uruguay Round came to put a higher priority on the export gains than on the import losses that the negotiation would produce, and they came to associate the WTO and a rules-

based system with those gains. This reasoning—replicated in many countries—was contained in U.S. Ambassador Kantor's defence of the WTO, and it amounted to a recognition that international trade and its benefits cannot be enjoyed unless trading nations accept the discipline of a negotiated rules-based environment.

A second factor in the creation of the WTO was pressure from lawyers and the legal process. The dispute settlement system of the WTO was seen as a victory of legalists over pragmatists but the matter went deeper than that. The GATT and the WTO, are contract organizations based on rules, and it is inevitable that an organization created to further rules will in turn be influenced by the legal process. Robert Hudec has written of the 'momentum of legal development', but what is this precisely? Legal development can be defined as promotion of the technical legal values of consistency, clarity (or, certainty) and effectiveness; these are values that those responsible for administering any legal system will seek to maximize. As it played out in the WTO, consistency meant integrating under one roof, the whole lot of separate agreements signed under GATT auspices; clarity meant removing ambiguities about the powers of contracting parties to make certain decisions or to undertake waivers; and effectiveness meant eliminating exceptions arising out of grandfather rights and resolving defects in dispute settlement procedures and institutional provisions. Concern for these values is inherent in any rules-based system of co-operation, since without these values, rules would be meaningless in the first place. Rules, therefore, create their own incentive for fulfillment.

The momentum of legal development has occurred in other institutions besides the GATT, most notably in the European Union (E.U). Over the past two decades, the European Court of Justice (ECJ) has consistently rendered decisions that have expanded incrementally the EU's internal market, in which the doctrine of 'mutual recognition' handed down in the case Cassis de Dijon in 1979 was a key turning point. The Court is now widely recognized as a major player in European integration, even though arguably, such a strong role was not originally envisaged in the Treaty of Rome, which initiated the current European Union. One means the Court used to expand integration was the 'teleological method of interpretation', whereby the actions of member states were evaluated against 'the accomplishment of the most elementary community goals set forth in the Preamble to the [Rome] treaty'. The teleological method represents an effort to keep current policies consistent with stated goals, and it is analogous to the effort in GATT to keep contracting party trade practices consistent with stated rules. In both cases, legal concerns and procedures are an independent force for further co-operation.

In large part, the WTO was an exercise in consolidation. In the context of a trade negotiation that created a near-revolutionary expansion of international trade rules, the formation of the WTO was a deeply conservative act needed to ensure that the benefits of the new rules would not be lost. The WTO was all about institutional structure and dispute settlement; these are the concerns of conservatives and not revolutionaries, which is why lawyers and legalists took the lead on these issues. The WTO codified the GATT institutional practice that had developed by custom over three decades, and it incorporated a new dispute settlement system that was necessary to keep both old and new rules from becoming a sham. Both the international structure and the dispute settlement system were necessary to preserve and enhance the integrity of the multilateral trade regime that had been built incrementally from the 1940s to the 1990s.

1. What could be the closest reason why WTO was not formed in the 1970s?
   (a) The US government did not like it.
   (b) Important players did not find it in their best interest to do so.
   (c) Lawyers did not work for the dispute settlement system.
   (d) The Tokyo Round negotiation was an attempt at constitutional reform.
2. The most likely reason for the acceptance of the WTO package by nations was that
   (a) it had the means to prevent the US from taking unilateral measures.
   (b) they recognized the need for a rule-based environment to protect the benefits of increased trade.
   (c) it settles disputes more legally and more effectively.
   (d) its rule-based system leads to export gains.
3. According to the passage, WTO promoted the technical legal values partly through:

(a) integrating under one roof, the agreements signed under GATT.
(b) rules that create their own incentive for fulfillment.
(c) grandfather-rights, exceptions and defects in dispute settlement procedures.
(d) ambiguities about the powers of contracting parties to make certain decisions.

4. In the method of interpretation of the European Court of Justice:
   (a) current policies need to be consistent with stated goals.
   (b) contracting party trade practices needed to be consistent with stated rules.
   (c) enunciation of the most elementary community goals needed to be emphasized.
   (d) actions of member states needed to be evaluated against the stated community goals.
5. In the statement ".... It amounted to a recognition that international trade and its benefits cannot be enjoyed unless trading nations accept the discipline of a negotiated rules-based environment.", 'it' refers to:
   (a) Ambassador Cantor's defence of the WTO.
   (b) The higher priority on export gains placed by many countries at the Uruguay Round.
   (c) The export gains many countries came to associate with a rule-based system.
   (d) The provision of a rule-based system by the WTO.
6. The importance of Cassis de Dijon is that it
   (a) gave a new impetus to the momentum of legal development at the European Court of Justice.
   (b) resulted in a decision that expanded incrementally, the EU's internal market.
   (c) strengthened the role of the court beyond what was envisaged in the Treaty of Rome.
   (d) led to a doctrine that was a key turning point in European integration.

Passage 2 (Total Words—855) (CAT 1999)

Have you ever come across a painting, by Picasso, Mondrain, Miro, or any other modern abstract painter of this century, and found yourself engulfed in a brightly coloured canvas, which your senses cannot interpret? Many people would tend to denounce abstractionism as senseless trash. These people are disoriented by Miro's bright, fanciful creatures and two-dimensional canvases. They click their tongues and shake their heads at Mondrain's grid works, declaring the poor guy played too many scrabble games. They silently shake their heads in sympathy for Picasso; whose gruesome, distorted figures must be a reflection of his mental health. Then, standing in front of a work by Charlie Russell, the famous Western artist, they'll declare it a work of God. People feel more comfortable with something they can relate to and understand immediately without too much thought. This is the case with the work of Charlie Russell. Being able to recognize the elements in his paintings—trees, horses and cowboys—gives people a safety line to their world of "reality". There are some who would disagree when I say abstract art requires more creativity and artistic talent to produce a good piece than does representational art, but there are many weaknesses in their arguments.

People who look down on abstract art have several major arguments to support their beliefs. They feel that artists turn abstract because they are not capable of the technical drafting skills that appear in a Russell; therefore, such artists create an art form that anyone is capable of and that is less time consuming, and then parade it as artistic progress. Secondly, they feel that the purpose of art is to create something of beauty in an orderly, logical composition. Russell's compositions are balanced and rational; everything sits calmly on the canvas, leaving the viewer satisfied that he has seen all there is to see. The modern abstractionists, on the other hand, seem to compose their pieces irrationally. For example, upon seeing Picasso's Guernica, a friend of mine asked me. "What's the point?" Finally, many people feel that art should portray the ideal and real. The exactness of detail in Charlie Russell's work is an example of this. He has been called a great historian because his pieces depict the life style, dress, and events of the times. His subject matter is derived from his own experiences on the trail, reproduced to the smallest detail. I agree in part with many of these arguments, and at one time, even endorsed them. But now, I believe differently. Firstly, I object to the argument that abstract artists are not capable of drafting. Many abstract artists, such as Picasso, are excellent draftsmen. As his work matured, Picasso became more abstract in order to increase the expressive quality of his work. Guernica was meant as a protest against

the bombing of that city by the Germans. To express the terror and suffering of the victims more vividly, he distorted the figures and presented them in a black and white journalistic manner. If he had used representational images and colour, much of the emotional content would have been lost and the piece would not have caused the demand for justice that it did. Secondly, I do not think that a piece must be logical and aesthetically pleasing to be art. The message it conveys to its viewers is more important. It should reflect the ideals and issues of its time and be true to itself, not just a flowery, glossy surface. For example, through his work, Mondrain was trying to present a system of simplicity, logic and rational order. As a result, his pieces did end up looking like a scrabble board. Miro created powerful, surrealistic images from his dreams and subconscious. These artists were trying to evoke a response from society through an expressionistic manner. Finally, abstract artists and representational artists maintain different ideas about 'reality'. To the abstract artist, reality is what he feels about what his eyes see. This is the reality he interprets on canvas. This can be illustrated by Mondrain's Trees series. You can actually see the progression from the early recognizable, though abstracted, Trees, to his final solution, the grid system.

A cycle of abstract and representational art began with the first scratching of prehistoric man. From the abstractions of ancient Egypt to representational, classical Rome, returning to abstractionism in early Christian art and so up to the present day, the cycle has been going on. But this day and age may witness its death through the camera. With film, there is no need to produce finely detailed, historical records manually; the camera does this for us more efficiently. May be, representational art would cease to exist. With abstractionism as the victor of the first battle, may be a different kind of cycle will be touched off. Possibly, some time in the distant future, thousands of years from now, art itself will be physically non-existent. Some artists today believe that once they have planned and constructed a piece in their mind, there is no sense in finishing it with their hands; it has already been done and can never be duplicated.

7. The author argues that many people look down upon abstract art because they feel that:
   (a) Modern abstract art does not portray what is ideal and real.
   (b) Abstract artists are unskilled in matters of technical drafting.
   (c) Abstractionists compose irrationally.
   (d) All of the above.
8. The author believes that people feel comfortable with representational art because:
   (a) they are not engulfed in brightly colored canvases.
   (b) they do not have to click their tongues and shake their heads in sympathy.
   (c) they understand the art without having to put too much strain on their minds.
   (d) Paintings like Guernica do not have a point.
9. In the author's opinion, Picasso's Guernica created a strong demand for justice since
   (a) it was a protest against the German bombing of Guernica.
   (b) Picasso managed to express the emotional content well with his abstract depiction.
   (c) it depicts the terror and suffering of the victims in a distorted manner.
   (d) it was a mature work of Picasso's, painted when the artist's drafting skills were excellent.
10. The author acknowledges that Mondrain's pieces may have ended up looking like a scrabble board because:
   (a) many people declared the poor guy played too many scrabble games.
   (b) Mondrain believed in the 'grid-work' approach to abstractionist painting.
   (c) Mondrain was trying to convey the message of simplicity and rational order.
   (d) Mondrain learned from his Trees series to evolve a grid system.
11. The main difference between the abstract artist and the representational artist in matters of the 'ideal' and the 'real' according to the author is:
   (a) how each chooses to deal with 'reality' on his or her canvas.
   (b) the superiority of interpretation of reality over reproduction of reality.
   (c) the different values attached by each to being a historian.
   (d) the varying levels of drafting skills and logical thinking abilities.

Passage 3 (Total Words—1006) (CAT 1999)

Each one has his reasons; for one, art is a flight: for another, a means of conquering. But one can flee into a hermitage, into madness, into death. One can conquer by arms. Why does it have to be Writing, why does one have to manage his escapes and conquests by Writing? Because, behind the various aims of authors, there is a deeper and more immediate choice which is common to all of us. We shall try to elucidate this choice, and we shall see whether it is not in the name of this very choice of writing that the engagement of writers must be required.

Each of our perceptions is accompanied by the consciousness that human reality is a 'revealer', that is, it is through human reality that 'there is' being, or, to put it differently, that man is the means by which things are manifested. It is our presence in the world which multiples relations. It is we who set up a relationship between this tree and that bit of sky. Thanks to us, that star which has been dead for millennia, that quarter moon, and that dark river are disclosed in the unity of a landscape. It is the speed of our auto and our airplane, which organizes the great masses of the earth. With each of our acts, the world reveals to us a new face. But, if we know that we are the directors of being, we also know that we are not its producers. If we turn away from this landscape, it will sink back into its dark permanence. At least, it will sink back; there is no one mad enough to think that it is going to be annihilated. It is we who shall be annihilated, and the earth will remain in its lethargy until another consciousness comes along to awaken it. Thus, to our inner certainty of being 'revealers' is added that of being inessential in relation to the thing revealed.

One of the chief motives of artistic creation is certainly the need of feeling that we are essential in relationship to the world. If I fix on canvas or in writing, a certain aspect of the fields or the sea or a look on someone's face which I have disclosed, I am conscious of having produced them by condensing relationships. By introducing order where there was none, by imposing the unity of mind on the diversity of things. That is, I think myself essential in relation to my creation. But this time, it is the created object which escapes me; I cannot reveal and produce at the same time. The creation becomes inessential in relation to the creative activity. First of all, even if it appears to others as definitive, the created object always seems to us in a state of suspension; we can always change this line, that shade, that word. Thus, it never forces itself. A novice painter asked his teacher. 'When should I consider my painting finished?' And the teacher answered. 'When you can look at it in amazement and say to yourself "I' m the one who did that!"

Which amounts to saying never. For it is virtually considering one's work with someone else's eyes and revealing what has been created. But it is self evident that we are proportionally less conscious of the thing produced and more conscious of our productive activity. When it is a matter of poetry or carpentry, we work according to traditional norms. With tools whose usage is codified, it is Heidegger's famous 'they' who are working with our hands. In this case, the result can seem to us sufficiently strange to preserve its objectivity in our eyes. But if we ourselves produce the rules of production, the measure, the criteria, and if our creative drive comes from the very depth of out heart, then we never find anything but ourselves in our work. It is we who have invented the laws by which we judge it. It is our history, our love, our gaiety that we recognize in it. Even if we should regard it without touching it any further, we never receive from it that gaiety or love. We put them into it. The results which we have obtained on canvas or paper never seem to us objective. We are too familiar with the processes of which they are the effects. These processes remain a subjective discovery; they are ourselves, our inspiration, our ruse, and when we seek to perceive our work, we create it again, we repeat mentally the operations which produced each of its aspects appears as a result. Thus, in the perception, the object is given as the essential thing and the subject as the inessential. The latter seeks essentiality in the creation and obtains it, but then it is the object which becomes the inessential.

The dialectic is nowhere more apparent than in the art of writing, for the literary object is a peculiar top, which exists only in movement. To make it come into view, a concrete act called reading is necessary, and it lasts only as long as this act can last. Beyond that, there are only black marks on paper. Now, the writer cannot read what he writes. Whereas the shoemaker can put on the shoes he has just made if they are to his size, and the architect can live in the house he has built. In reading, one foresees; one waits. He foresees the end of the sentence, the following sentence, the next page. He waits for them, to confirm, or disappoint his foresights. The reading is composed of a host of hypotheses, followed by awakenings, of hopes and deceptions. Readers are

always ahead of the sentence they are reading in a merely probable future, which partly collapses and partly comes together in proportion as they progress, which withdraws from one page to the next and forms the moving horizon of the literary object. Without waiting, without a future, without ignorance, there is no objectivity.

12. The author holds that:
    (a) There is an objective reality and a subjective reality.
    (b) Nature is the sum total of disparate elements.
    (c) It is human action that reveals the various facets of nature.
    (d) Apparently disconnected elements in nature are unified in a fundamental sense.
13. It is the author's contention that:
    (a) Artistic creations are results of human consciousness.
    (b) The very act of artistic creation leads to the escape of the created object.
    (c) Man can produce and reveal at the same time.
    (d) An act of creation forces itself on our consciousness, leaving us full of amazement.
14. The passage makes a distinction between perception and creation in terms of:
    (a) Objectivity and subjectivity.
    (b) Revelation and action.
    (c) Objective reality and perceived reality.
    (d) Essentiality and non-essentiality of objects and subject.
15. The art of writing manifests the dialectic of perception and creation because:
    (a) reading reveals the writing till the act of reading lasts.
    (b) writing to be meaningful, needs the concrete act of reading.
    (c) this art is anticipated and progresses on a series of hypotheses.
    (d) this literary object has a moving horizon brought about by the very act of creation.
16. A writer, as an artist,
    (a) reveals the essentiality of revelation.
    (b) makes us feel essential vis-à-vis nature.
    (c) creates reality.
    (d) reveals nature in its permanence

Passage 4 (Total Words—921) (CAT 1999)

Since World War II, the nation-state has been regarded with approval by every political system and every ideology. In the name of modernization in the West, of socialism in the Eastern bloc, and of development in the Third World, it was expected to guarantee the happiness of individuals as citizens and of peoples as societies. However, the state today appears to have broken down in many parts of the world. It has failed to guarantee either security or social justice, and has been unable to prevent either international wars or civil wars. Disturbed by the claims of communities within it, the nation-state tries to repress their demands and to proclaim itself as the only guarantor of security of all. In the name of national unity, territorial integrity, equality of all its citizens and non-partisan secularism, the state can use its powerful resources to reject the demands of the communities; it may even go so far as genocide to ensure that order prevails.

As one observes the awakening of communities in different parts of the world, one cannot ignore the context in which identity issues arise. It is no longer a context of sealed frontiers and isolated regions, but is one of integrated global systems. In a reaction to this trend towards globalisation, individuals and communities everywhere are voicing their desire to exist, to use their power of creation and to play an active part in national and international life.

There are two ways in which the current upsurge in demands for the recognition of identities can be looked at. On the positive side, the efforts by certain population groups to assert their identity can be regarded as "liberation movements", challenging oppression and injustice. What these groups are doing—proclaiming that they are different, rediscovering the roots of their culture or strengthening group solidarity—may accordingly be seen as legitimate attempts to escape from their state of subjugation and enjoy a certain measure of dignity. On the downside, however, militant action for recognition tends to make such groups more deeply entrenched in their attitude and to make their cultural compartments even more watertight. The assertion of identity then starts turning into self-absorption and isolation, and is liable to slide into intolerance of others and towards ideas of "ethnic cleansing", xenophobia and violence.

Whereas continuous variations among peoples prevent drawing of clear dividing lines between the groups, those militating for recognition of their group's identity arbitrarily

choose a limited number of criteria such as religion, language, skin colour; and place or origin so that their members recognise themselves primarily in terms of the labels attached to the group whose existence is being asserted. This distinction between the group in question and other groups is established by simplifying the feature selected. Simplification also works by transforming groups into essences, abstractions endowed with the capacity to remain unchanged through time. In some cases, people actually act as though the group has remained unchanged and talk, for example, about the history of nations and communities as if these entities survived for centuries without changing, with the same ways of acting and thinking, the same desires, anxieties, and aspirations.

Paradoxically, precisely because identity represents a simplifying fiction, creating uniform groups out of disparate people, that identity performs a cognitive function. It enables us to put names to ourselves and others, form some idea of who we are and who others are, and ascertain the place we occupy along with the others in the world and society. The current upsurge to assert the identity of groups can thus be partly explained by the cognitive function performed by identity. However, that said, people would not go along as they do, often in large numbers, with the propositions put to them, in spite of the sacrifices they entail, if there was not a very strong feeling of need for identity, a need to take stock of things and know who we are where we come from and where we are going.

Identity is thus a necessity in a constantly changing world, but it can also be a potent source of violence and disruption. How can these two contradictory aspects of identity be reconciled? First, we must bear the arbitrary nature of identity categories in mind, not with a view to eliminating all forms of identification—which would be unrealistic since identity is a cognitive necessity—but simply to remind ourselves that each of us has several identities at the same time. Second, since tears of nostalgia are being shed over the past, we recognize that culture is constantly being recreated by cobbling together fresh and original elements and counter-cultures. There are in our own country, a large number of syncretic cults wherein modern elements are blended with traditional values or people of different communities venerate saints or divinities of particular faiths. Such cults and movements are characterized by a continual inflow and outflow of members which prevent them from taking on a self-perpetuating existence of their own and hold out hope for the future, indeed perhaps for the only possible future. Finally, the nation-state must respond to the identity urges of its constituent communities and to their legitimate quest for security and social justice. It must do so by inventing what the French philosopher and sociologist, Raymond Aron, called peace through law. That would guarantee justice both to the state as a whole and its parts, and respect the claims of both reason and emotions. The problem is one of reconciling nationalist demands with the exercise of democracy.

17. According to the author, happiness of individuals was expected to be guaranteed in the name of:
    (a) Development in the Third World.
    (b) Socialism in the Third World.
    (c) Development in the West.
    (d) Modernisation in the Eastern Bloc.
18. Demands for recognition of identities can be viewed:
    (a) positively and negatively.
    (b) as liberation movements and militant action.
    (c) as efforts to rediscover cultural roots which can slide towards intolerance of others.
    (d) All of the above.
19. Going by the author's exposition of the nature of identity, which of the following statements is untrue?
    (a) Identity represents creating uniform groups out of disparate people.
    (b) Identity is a necessity in the changing world.
    (c) Identity is a cognitive necessity.
    (d) None of the above.
20. According to the author, the nation-state
    (a) has fulfilled its potential.
    (b) is willing to do anything to preserve order.
    (c) generates security for all its citizens.
    (d) has been a major force in preventing civil and international wars.
21. Which of the following views of the nation-state cannot be attributed to the author?
    (a) It has not guaranteed peace and security.
    (b) It may go as far as genocide for self-preservation.
    (c) It represents the demands of communities within it.
    (d) It is unable to prevent international wars.

Passage 5 (Total Words—1460) (CAT 1999)

The persistent patterns in the way nations fight reflect their cultural and historical traditions and deeply rooted attitudes that collectively make up their strategic culture. These patterns provide insights that go beyond what can be learnt just by comparing armaments and divisions. In the Vietnam War, the strategic tradition of the United States called for forcing the enemy to fight a massed battle in an open area, where superior American weapons would prevail. The United States was trying to fight World War II in the jungles of Southeast Asia, against an enemy with no intention of doing so.

Some British military historians describe the Asian way of war as one of indirect attacks, avoiding frontal attacks meant to overpower an opponent. This traces back to Asian history and geography: the great distances and harsh terrain have often made it difficult to execute the sort of open field clashes allowed by the flat terrain and relatively compact size of Europe. A very different strategic tradition arose in Asia.

The bow and arrow were metaphors for an Eastern way of war: By its nature, the arrow is an indirect weapon. Fired from a distance of hundreds of yards, it does not necessitate immediate physical contact with the enemy. Thus, it can be fired from hidden positions. When fired from behind a bridge, the barrage seems to come out of nowhere, taking the enemy by surprise. The tradition of this kind of fighting is captured in the classical strategic writings of the East. The 2,000 years' worth of Chinese writings on war constitutes the subtlest writings on the subject in any language. Not until Clausewitz did the West produce a strategic theorist to match the sophistication of Sun-tzu, whose Art of War was written 2,300 years earlier.

In Sun-tzu and other Chinese writings, the highest achievement of arms is to defeat an adversary; without fighting. He wrote. "To win one hundred victories in one hundred battles is not the acme of skill. To subdue the enemy without fighting is the supreme excellence." Actual combat is just one among many means towards the goal of subduing an adversary. War contains too many surprises to be a first resort. It can lead to ruinous losses, as has been seen time and again. It can have the unwanted effect of inspiring heroic efforts in an enemy, as the United States learned in Vietnam, and as the Japanese found out after Pearl Harbor.

Aware of the uncertainties of a military campaign, Sun-tzu advocated war only after the most thorough preparations. Even then, it should be quick and clean. Ideally, the army is just an instrument to deal the final blow to an enemy already weakened by isolation, poor morale, and disunity. Ever since Sun-tzu, the Chinese have been seen as masters of subtlety, who take measured actions to manipulate an adversary without his knowledge. The dividing line between war and peace can be obscure. Low level violence often is the backdrop to a larger strategic campaign. The unwitting victim, focused on the day-to-day events, never realizes what's happening to him until it's too late. History holds many examples. The Viet Cong lured French and U.S. infantry deep into the jungle, weakening their morale over several years. The mobile army of the United States was designed to fight on the plains of Europe, where it could quickly move unhindered from one spot to the next. The jungle did more than make quick movement impossible; broken down into smaller units and scattered in isolated bases, US forces were deprived of the feeling of support and protection that ordinarily comes from being part of a big army.

The isolation of U.S. troops in Vietnam was not just a logistical detail, something that could be overcome by, for instance, bringing in reinforcements by helicopter. In a big army reinforcements are readily available. It was Napoleon who realized the extraordinary effects on morale that come from being part of a larger formation. Just the knowledge of it lowers the soldier's fear and increases his aggressiveness. In the jungle and on isolated bases, this feeling was removed. The thick vegetation slowed down the reinforcements and made it difficult to find stranded units. Soldiers felt they were on their own.

More important, by altering the way the war was fought, the Viet Cong stripped the United States of its belief in the inevitability of victory, as it had done to the French before them. Morale was high when these armies first went to Vietnam. Only after many years of debilitating and demoralizing fighting did Hanoi launch its decisive attacks, at Dienbienphu in 1954 and against Saigon in 1975. It should be recalled that in the final push to victory, the North Vietnamese abandoned their jungle guerrilla tactics completely, committing their entire army of twenty divisions to pushing the South Vietnamese into collapse. The final battle, with the enemy's army all in one place, was the one that the United States had desperately wanted

to fight in 1965. When it did come out into the open in 1975, Washington had already withdrawn its forces and there was no possibility of re-intervention.

The Japanese early in World War II, used a modern form of the indirect attack, one that relied on stealth and surprise for its effect. At Pearl Harbor, in the Philippines, and in Southeast Asia, stealth and surprise were attained by sailing under radio silence so that the navy's movements could not be tracked. Moving troops aboard ships into Southeast Asia made it appear that the Japanese army was also "invisible". Attacks against Hawaii and Singapore seemed, to the American and British defenders, to come from nowhere. In Indonesia and the Philippines, the Japanese attack was even faster than the German blitz against France in the West. The greatest military surprises in American history have all been in Asia. Surely, there is something going on here beyond the purely technical difficulties of detecting enemy movements. Pearl Harbor, the Chinese intervention in Korea, and the Tet offensive in Vietnam, all came out of a tradition of surprise and stealth. U.S. technical intelligence—the location of enemy units and their movements—was greatly improved after each surprise, but with no noticeable improvement in the American ability to foresee or prepare what would happen next. There is a cultural divide here, not just a technical one. Even when it was possible to track an army with intelligence satellites, as when Iraq invaded Kuwait or when Syria and Egypt attacked Israel, surprise was achieved. The United States was stunned by Iraq's attack on Kuwait even though it had satellite pictures of Iraqi troops massing at the border.

The exception that proves the point that cultural differences obscure the West's understanding of Asian behavior was the Soviet Union's 1979 invasion of Afghanistan. This was fully anticipated and understood in advance. There was no surprise because the United States understood Moscow's world view and thinking. It could anticipate Soviet action almost as well as the Soviets themselves, because the Soviet Union was really a Western country.

The difference between the Eastern and the Western way of war is striking. The West's great strategic writer, Clausewitz, linked war to politics, as did Sun-tzu. Both were opponents of militarism, of turning war over to the generals. But there all similarity ends. Clausewitz wrote that the way to achieve a larger political purpose is through destruction of the enemy's army. After observing Napolean conquer Europe by smashing enemy armies to bits, Clausewitz made his famous remark in On War (1932) that combat is the continuation of politics by violent means. Morale and unity are important, but they should be harnessed for the ultimate battle. If the Eastern way of war is embodied by the stealthy archer, the metaphorical Western counterpart is the swordsman charging forward, seeking a decisive showdown, eager to administer the blow that will obliterate the enemy once and for all. In this view, war proceeds along a fixed course and occupies a finite extent of time, like a play in three acts with a beginning, a middle, and an end. The end, the final scene, decides the issue for good.

When things don't work out quite this way, the Western military mind feels tremendous frustration. Sun-tzu's great disciples, Mao Zedong and Ho Chi Minh, are respected in Asia for their clever use of indirection and deception to achieve an advantage over stronger adversaries. But in the West, their approach is seen as underhanded and devious. To the American strategic mind, the Viet Cong guerrilla did not fight fairly. He should have come out into the open and fought like a man, instead of hiding in the jungle and sneaking around like a cat in the night.

22. According to the author; the main reason for the U.S losing the Vietnam war was
    (a) the Vietnamese understood the local terrain better.
    (b) the lack of support for the war from the American people.
    (c) the failure of the U.S. to mobilize its military strength.
    (d) their inability to fight a war on terms other than those they understood well.
23. Which of the following statements does not describe the 'Asian' way of war?
    (a) Indirect attacks without frontal attacks.
    (b) The swordsman charging forward to obliterate the enemy once and for all.
    (c) Manipulation of an adversary without his knowledge.
    (d) Subduing an enemy without fighting.
24. Which of the following is not one of Sun-tzu's deans?
    (a) Actual combat is the principal means of subduing an adversary.

(b) War should be undertaken only after thorough preparation.
(c) War is linked to politics.
(d) War should not be left to the generals alone.

25. The difference in the concepts of war of Clausewitz and Sun-tzu is best characterized by
(a) Clausewitz's support for militarism as against Sun-tzu's opposition to it.
(b) Their relative degrees of sophistication.
(c) Their attitude to guerilla warfare.
(d) Their differing conceptions of the structure, time and sequence of war.

26. To the Americans, the approach of the Viet Cong seemed devious because
(a) the Viet Cong did not fight like men out in the open.
(b) the Viet Cong allied with America's enemies.
(c) the Viet Cong used bows and arrows rather than conventional weapons.
(d) None of these

27. According to the author, the greatest military surprises in American history have been in Asia because:
(a) The Americans failed to implement their military strategies many miles away from their own country.
(b) The Americans were unable to use their technologies like intelligence satellites effectively to detect enemy movements.
(c) The Americans failed to understand the Asian culture of war that was based on stealth and surprise.
(d) Clausewitz is inferior to Sun-tzu.

III

Passage 1 (Total Words—1233) (CAT 2000)

The current debate on intellectual property rights (IPRs) raises a number of important issues concerning the strategy and policies for building a more dynamic national agricultural research system, the relative roles of public and private sectors, and the role of agribusiness multinational corporations (MNCs). This debate has been stimulated by the international agreement on Trade Related Intellectual Property Rights (TRIPs), negotiated as part of the Uruguay Round. TRIPs, for the first time, seeks to bring innovations in agricultural technology under a new world wide IPR regime. The agribusiness MNCs (along with pharmaceutical companies) played a leading part in lobbying for such a regime during the Uruguay Round negotiations. The argument was that incentives are necessary to stimulate innovations, and that this calls for a system of patents which gives innovators the sole right to use (or sell/ lease the right to use) their innovations for a specified period and protects them against unauthorized copying or use. With strong support of their national governments, they were influential in shaping the agreement on TRIPs, which eventually emerged from the Uruguay Round.

The current debate on TRIPs in India—as indeed elsewhere—echoes wider concerns about 'privations' of research and allowing a free field for MNCs in the sphere of biotechnology and agriculture. The agribusiness corporations and those with unbounded faith in the power of science to overcome all likely problems; point to the vast potential that new technology holds for solving the problems of hunger, malnutrition and poverty in the world. The exploitation of this potential should be encouraged and this is best done by the private sector for which patents are essential. Some, who do not necessarily accept this optimism, argue that fears of MNC domination are exaggerated and that farmers will accept their products only if they decisively outperform the available alternatives. Those who argue against agreeing to introduce an IPR regime in agriculture and encouraging private sector research are apprehensive that this will work to the disadvantage of farmers by making them more and more dependent on monopolistic MNCs. A different, though related apprehension is that extensive use of hybrids and genetically engineered new varieties might increase the vulnerability of agriculture to outbreaks of pest and disease. The larger, longer-term consequences of reduced biodiversity that may follow from the use of specially bred varieties are also another cause for concern. Moreover; corporations, driven by the profit motive, will necessarily tend to underplay, if not ignore, potential adverse consequences, especially those which are unknown and which may manifest themselves only over a relatively long period. On the other hand, high-pressure advertising and aggressive sales campaigns by private companies can seduce farmers into accepting varieties without being aware

of potential adverse effects and the possibility of disastrous consequences for their livelihood if these varieties happen to fail. There is no provision under the laws, as they now exist, for compensating users against such eventualities. Excessive preoccupation with seeds and seed material has obscured other important issues involved in reviewing the research policy. We need to remind ourselves that improved varieties by themselves are not sufficient for sustained growth of yields. In our own experience, some of the early high yielding varieties (HYVs) of rice and wheat were found susceptible to widespread pest attacks; and some had problems of grain quality. Further research was necessary to solve these problems. This largely successful research was almost entirely done in public research institutions. Of course, it could in principle have been done by private companies, but whether they choose to do so depends crucially on the extent of the loss in market for their original introductions on account of the above factors and whether the companies are financially strong enough to absorb the losses, invest in research to correct the deficiencies and recover the lost market. Public research, which is not driven by profit, is better placed to take corrective action. Research for improving common pool resource management, maintaining ecological health and ensuring sustainability is both critical and also demanding in terms of technological challenge and resource requirements. As such research is crucial to impact new varities, chemicals and equipment in the farmer's field, private companies should be interested in such research. But their primary interest is in the sale of seed material, chemicals, equipments and other inputs produced by them. Knowledge and techniques for resource management are not 'marketable' in the same way as those inputs. Their applications to land, water and forests has a long gestation and their efficacy depends on resolving difficult problems such as designing institutions for proper and equitable management of common pool resources. Public or quasi-public research institutions informed by broader; long-term concerns can only do such work.

The public sector must therefore continue to play a major role in the national research system. It is both wrong and misleading to pose the problem in terms of public sector versus private sector or of privatization of research. We need to address problems likely to arise on account of the public-private sector complementarity, and ensure that the public research system performs efficiently. Complementarity between various elements of research raises several issues in implementing an IPR regime. Private companies do not produce new varieties and inputs entirely as result of their own research. Almost all-technological improvement is based on knowledge and experience accumulated from the past. And the results of basic and applied research in public and quasi-public institutions (universities, research organization). Moreover, as is increasingly recognized, accumulated stock of knowledge does not reside only in the scientific community and its academic publications, but is also widely diffused in traditions and folk knowledge of local communities all over.

The deciphering of the structure and functioning of DNA forms the basis of much of modern biotechnology. But this fundamental breakthrough is a 'public good' freely accessible in the public domain and usable free of any charge. Varieties/ techniques developed using that knowledge can however be, and are, patented for private profit. Similarly, private corporations draw extensively, and without any charge, on germ plasma available in varieties of plants species (neem and turmeric are by now famous examples). Publicly funded gene banks as well as new varieties bred by public sector research stations can also be used freely by private enterprises for developing their own varieties and seek patent protection for them. Should private breeders be allowed free use of basic scientific discoveries? Should the repositories of traditional knowledge and germ plasma be collected which are maintained and improved by publicly funded institutions? Or should users be made to pay for such use? If they are to pay, what should be the basis of compensation? Should the compensation be for individuals of for communities/ institutions to which they belong? Should individuals/institutions be given the right of patenting their innovations?

These are some of the important issues that deserve more attention than they now get and need serious detailed study to evolve reasonably satisfactory, fair and workable solutions. Finally, the tendency to equate the public sector with the government is wrong. The public state is much wider than government departments and includes co-operatives, universities, public trusts and a variety of non-government organizations. Giving greater autonomy to research organizations from government control and giving non-government public institutions the space and resources to play a larger, more effective role in research, is therefore an issue of direct relevance in restructuring the public system.

1. Which one of the following statements describes an important issue or important issues, not being raised in the context of the current debate on IPRs?
   (a) The role of MNCs in the sphere of biotechnology and agriculture.
   (b) The strategy and policies for establishing an IPR regime for Indian agriculture.
   (c) The relative roles of public and private sectors.
   (d) Wider concerns about 'privatization' of research.
2. The fundamental breakthrough in deciphering the structure and functioning of DNA has become a public good. This means that:
   (a) Breakthroughs in fundamental research on DNA are accessible by all, without any monetary considerations.
   (b) The fundamental research on DNA has the characteristic of having beneficial effects for the public at large.
   (c) Due to the large scale of fundamental research on DNA, it falls in the domain of public sector research institutions.
   (d) The public and other companies must have free access to such fundamental breakthroughs in research.
3. In debating the respective roles of the public and private sectors in the national research system, it is important to recognize:
   (a) that private companies do not produce new varieties and inputs entirely on their own research.
   (b) that almost all technological improvements are based on knowledge and experience accumulated from the past.
   (c) the complementary role of public and private sector research.
   (d) that knowledge repositories are primarily the scientific community and its academic publications.
4. Which one of the following may provide incentives to address the problem of potential adverse consequences of biotechnology?
   (a) Include IPR issue in the TRIPs agreement.
   (b) Nationalise MNCs engaged in private research in biotechnology.
   (c) Encourage domestic firms to patent their innovation.
   (d) Make provision in the law for user compensation against failure of newly developed varieties.
5. Which of the following statements is not a likely consequence of emerging technology in agriculture?
   (a) Development of newer and newer varieties will lead to increase in biodiversity.
   (b) MNCs may underplay the negative consequences of the newer technology on environment.
   (c) Newer varieties of seeds may increase vulnerability of crops to pest and diseases.
   (d) Reforms in patent laws and user compensation against crop failures would be needed to address new technology problems.
6. The TRIPs agreement emerged from the Uruguay Round to:
   (a) address the problem of adverse consequences of genetically engineered new varieties of grain.
   (b) fulfill the WTO requirement to have an agreement on trade related property rights.
   (c) provide innovators a way of protecting their intellectual property.
   (d) give credibility to the innovations made by MNCs in the field of pharmaceuticals and agriculture.
7. Public or quasi-public research institutions are more likely than private companies to address the negative consequences of new technologies, because of which of the following reason/s?
   (a) Public research is not driven by profit motive.
   (b) Private companies may not be able to absorb losses arising out of the negative effects of the new technologies.
   (c) Unlike new technology, product knowledge and techniques for resource management are not amenable to simple market transactions.
   (d) All of the above.
8. While developing a strategy and policies for building a more dynamic national agricultural research system, which one of the following statements needs to be considered?
   (a) Public and quasi-public institutions are not interested in making profits.

(b) Public and quasi-public institutions have a broader and longer-term outlook than private companies.
(c) Private companies are incapable of building products based on traditional and folk knowledge.
(d) Traditional and folk knowledge cannot be protected by patents.

Passage 2 (Total Words—1195) (CAT 2000)

One of the criteria by which we judge the vitality of a style of painting is its ability to renew itself—its responsiveness to the changing nature and quality of experience, the degree of conceptual and formal innovation that it exhibits. By this criterion, it would appear that the practice of abstractionism has failed to engage creatively with the radical change in human experience in recent decades. It has, seemingly, been unwilling to re-invent itself in relation to the system of artistic expression and viewers' expectations that have developed under the impact of the mass media.

The judgment that abstractionism has slipped into 'inertia gear' is gaining endorsement, not only among discerning viewers and practitioners of other art forms, but also among abstract painters themselves. Like their companions elsewhere in the world, abstractionists in India are asking themselves an overwhelming question today. Does abstractionism have a future? The major crisis that abstractionists face is that of revitalizing their picture surface; few have improvised many solutions beyond the ones that were exhausted by the 1970s. Like all revolutions, whether in politics or in art, abstractionism must now confront its moment of truth: having begun life as a new and radical pictorial approach to experience, it has become an entrenched orthodoxy itself. Indeed, when viewed against a historical situation in which a variety of subversive, interactive and richly hybrid forms are available to the art practitioner, abstractionism assumes the remote and defiant air of an aristocracy that has outlived its age; trammeled by formulaic conventions, yet buttressed by a rhetoric of sacred mystery, it seems condemned to being the last citadel of the self-regarding 'fine-art' tradition, the last hurrah of painting for painting's sake.

The situation is further complicated in India by the circumstances in which an indigenous abstractionism came into prominence here during the 1960s. From the beginning it was propelled by the dialectic between two motives, one revolutionary and the other conservative—it was inaugurated as an act of emancipation from the dogmas of the nascent Indian nation state, when art was officially viewed as an indulgence at worst, and at best, as an instrument for the celebration of the republic's hopes and aspirations. Having rejected these dogmas, the pioneering abstractionists also went on to reject the various figurative styles associated with the Shantiniketan circle and others. In such a situation, abstractionism was a revolutionary move. It led art towards the exploration of the subconscious mind, the spiritual quest and the possible expansion of consciousness. Indian painting entered into a phase of self-inquiry, meditative inner space where cosmic symbols and non-representational images ruled. Often, the transition from figurative idioms to abstractionist ones took place within the same artist.

At the same time, Indian abstractionists have rarely committed themselves wholeheartedly to a non-representational idiom. They have been preoccupied with the fundamentally metaphysical project of aspiring to the mystical-holy without altogether renouncing the symbolic. This has been sustained by a hereditary reluctance to give up the murti, the inviolable iconic form, which explains why abstractionism is marked by the conservative tendency to operate with images from the sacred repertoire of the past. Abstractionism thus entered India as a double-edged device in a complex cultural transaction. Ideologically, it served as an internationalist legitimization of the emerging revolutionary local trends. However, on entry, it was conscripted to serve local artistic preoccupations—a survey of indigenous abstractionism will show that its most obvious points of affinity with European and American abstract art were with the more mystically oriented of the major sources of abstractionist philosophy and practice, for instance, the Kandinsky-Klee, school. There have been no takers for Malevich's Supermatism, which militantly rejected both the artistic forms of the past and the world of appearances, privileging the new-minted geometric symbol as an autonomous sign of the desire for infinity.

Against this backdrop, we can identify three major abstractionist idioms in Indian art. The first develops from a love of earth, and assumes the form of a celebration of the self's dissolution in the cosmic panorama; the landscape is no longer a realistic transcription of the scene, but is transformed into a visionary occasion for contemplating

cycles of decay and regeneration. The second idiom phrases its departures from symbolic and archetypal devices as invitations to heightened planes of awareness. Abstractionism begins with the establishment or dissolution of the motif, which can be drawn from diverse sources, including the hieroglyphic tablet, the Sufi meditation dance or Tantric diagram. The third idiom is based on the lyric play of forms guided by gesture or allied with formal improvisations like the assemblage. Here, sometimes, the line dividing abstract image from patterned design or quasi-random expressive marking may blur. The flux of forms can also be regimented through the poetics of pure colour arrangements, vector-diagrammatic spaces and gestural design.

In this genealogy, some pure lines of descent follow their logic to the inevitable point of extinction, others engage in cross-fertilization, and yet others undergo mutation to maintain their energy. However, this genealogical survey demonstrates the wave at its crest, those points where the metaphysical and the painterly have been fused in images of abiding potency, ideas sensuously ordained rather than fabricated programmatically to a concept. It is equally possible to enumerate the troughs where the two principles do not come together; thus arriving at a very different account. Uncharitable as it may sound, the history of Indian abstractionism records a series of attempts to avoid the risks of abstraction by resorting to an overt and near-generic symbolism, which many Indian abstractionists embrace when they find themselves bereft of the imaginative energy to negotiate the union of metaphysics and painterliness. Such symbolism falls into a dual trap: it succumbs to the pompous vacuity of pure metaphysics when the burden of intention is passed off as justification: or then it is desiccated by the arid formalism of pure painterliness. With delight in the measure of change or pattern guiding the execution of a painting, the ensuing conflict of purpose stalls the progress of abstractionism in an impasse. The remarkable Indian abstractionists are precisely those who have overcome this and addressed themselves to the basic elements of their art with a decisive sense of independence from prior models. In their recent work, we see the logic of Indian abstractionism pushed almost to the furthest it can be taken. Beyond such artists stands a lost generation of abstractionism whose work invokes a wistful, delicate beauty, but stops there.

Abstractionism is not a universal language; it is an art that points up the loss of a shared language of signs in society. And yet, it affirms the possibility of its recovery through the effort of awareness. While its rhetoric has always emphasized a call for new forms of attention, abstractionists' practice has tended to fall into a complacent pride in its own incomprehensibility; fatal in an ethos where vibrant new idioms compete for viewers' attention. Indian abstractionists ought to really return to basics, to reformulate and replenish their understanding of the nature of the relationship between the painted image and the world around it. But can they abandon their favourite conceptual habits and formal conventions, if this becomes necessary?

9. Which one of the following is not stated by the author as a reason for abstractionism losing its vitality?
   (a) Abstractionism has failed to reorient itself in the context of changing human experience.
   (b) Abstractionism has not considered the developments in artistic expression that have taken place in recent times.
   (c) Abstractionism has not followed the path taken by all revolutions, whether in politics or art.
   (d) The impact of mass media on viewers' expectation has not been assessed, and responded to, by abstractionism.
10. Which one of the following, according to the author; is the role that abstractionism plays in a society?
   (a) It provides an idiom that can be understood by most members in a society.
   (b) It highlights the absence of a shared language of meaningful symbols, which can be recreated through greater awareness.
   (c) It highlights the contradictory artistic trends of revolution and conservation that any society needs to move forward.
   (d) It helps abstractionists invoke the wistful, delicate beauty that may exist in society.
11. According to the author, which one of the following characterizes the crisis faced by abstractionism?
   (a) Abstractionists appear to be unable to transcend the solutions tried out earlier.
   (b) Abstractionism has allowed itself to be confined by set forms and practices.
   (c) Abstractionists have been unable to use the multiplicity of forms now becoming available to an artist.
   (d) All of the above.

12. According to the author; the introduction of abstraction was revolutionary because it:
    (a) celebrated the hopes and aspirations of a newly independent nation.
    (b) provided a new direction to Indian art, towards self-inquiry and non-representational images.
    (c) managed to obtain international support for the abstractionist agenda.
    (d) was emancipation from the dogmas of the nascent nation state.
13. Which one of the following is not part of the author's characterization of the conservative trend in Indian abstractionism?
    (a) An exploration of the subconscious mind.
    (b) A lack of full commitment to non-representational symbols.
    (c) An adherence to the symbolic while aspiring to the mystical.
    (d) Usage of the images of gods or similar symbols.
14. Given the author's delineation of the three abstractionist idioms in Indian art, the third idiom can be best distinguished from the other two idioms through its:
    (a) depiction of nature's cyclical renewal.
    (b) use of non-representational images.
    (c) emphasis on arrangement of forms.
    (d) limited reliance on original models.
15. According to the author; the attraction of the Kandinsky-Klee School for Indian abstractionists can be explained by which one of the following?
    (a) The conservative tendency to aspire to the mystical without a complete renunciation of the symbolic.
    (b) The discomfort of Indian abstractionists with Malevich's supermatism.
    (c) The easy identification of Obvious points of affinity with European and American abstract art, of which the Kandinsky-Klee School is an example.
    (d) The double-edged nature of abstractionism which enabled identification with mystically-oriented schools.
16. Which one of the following, according to the author, is the most important reason for the stalling of abstractionism's progress in an impasse?
    (a) Some artists have followed their abstractionist logic to the point of extinction.
    (b) Some artists have allowed chance or pattern to dominate the execution of their paintings.
    (c) Many artists have avoided the trap of a near generic and an open symbolism.
    (d) Many artists have found it difficult to fuse the twin principles of the metaphysical and the painterly.

Passage 3 (Total Words—1244) (CAT 2000)

In a modern computer, electronic and magnetic storage technologies play complementary roles. Electronic memory chips are fast but volatile (their contents are lost when the computer is unplugged). Magnetic tapes and hard disks are slower; but have the advantage that they are non-volatile, so that they can be used to store software and documents even when the power is off.

In laboratories around the world, however; researchers are hoping to achieve the best of both worlds. They are trying to build magnetic memory chips that could be used in place of today's electronic ones. These magnetic memories would be non-volatile; but they would also be faster, would consume less power, and would be able to stand up to hazardous environments more easily. Such chips would have obvious applications in storage cards for digital cameras and music-players; they would enable handheld and laptop computers to boot up more quickly and to operate for longer; they would allow desktop computers to run faster; they would doubtless have military and space-faring advantages too. But although the theory behind them looks solid, there are tricky practical problems that need to be overcome. Two different approaches, based on different magnetic phenomena are being pursued. The first, being investigated by Gary Prinz and his colleagues at the Naval Research Laboratory (NRL) in Washington, D.C., exploits the fact that the electrical resistance of some materials changes in the presence of a magnetic field—a phenomenon known as magneto-resistance. For some multi-layered materials this effect is particularly powerful and is, accordingly, called "giant" magneto-resistance (GMR). Since 1997, the exploitation of GMR has made cheap multi-gigabyte hard disks commonplace. The magnetic orientations of the magnetized spots on the surface of a spinning disk are detected by measuring the changes they induce in the resistance of a tiny sensor. This technique is

so sensitive that it means the spots can be made smaller and packed closer together than was previously possible, thus increasing the capacity and reducing the size and cost of a disk drive.

Dr. Prinz and his colleagues are now exploiting the same phenomenon on the surface of memory chips, rather than spinning disks. In a conventional memory chip, each binary digit (bit) of data is represented using a capacitor—reservoir of electrical charge that is either empty or full—to represent a zero or a one. In the NRL's magnetic design, by contrast, each bit is stored in a magnetic element in the form of a vertical pillar of magnetized material, either clockwise or anticlockwise to represent zero or one. Another set of wires allows current to pass through any particular element. By measuring an element's resistance you can determine its magnetic orientation, and hence, whether it is storing a zero or a one. Since the elements retain their magnetic orientation even when the power is off, the result is nonvolatile memory. Unlike the elements of an electronic memory, a magnetic memory's elements are not easily disrupted by radiation. And compared with electronic memories, whose capacitors need constant topping up, magnetic memories are simpler and consume less power. The NRL researchers plan to commercialise their device through a company called Non-Volatile Electronics, which recently began work on the necessary processing and fabrication techniques. But it will be some years before the first chips toll off the production line.

Most attention in the field is focused on an alternative approach based on magnetic tunnel-junctions (MTJs), which are being investigated by researchers at chipmakers such as IBM, Motorola, Siemens and Hewlett-Packard. IBM's research team, led by Stuart Parkin, has already created a 500-element working prototype that operates at 20 times the speed of conventional memory chips and consumes 1% of the power: Each element consists of a sandwich of two layers of magnetable material separated by a barrier of aluminum oxide just four or five atoms thick. The polarization of lower magnetable layer is fixed in one direction, but that of the upper layer can be set (again by passing a current through a matrix of control wires) either to the left or to the right, to store a zero or a one. The polarizations of the two layers are then in either the same or opposite directions.

Although the aluminium-oxide barrier is an electrical insulator, it is so thin that electrons are able to jump across it via a quantum-mechanical effect called tunneling. It turns out that such tunneling is easier when the two magnetic layers are polarized in the same direction than when they are polarized in opposite directions, so, by measuring the current that flows through the sandwich, it is possible to determine the alignment of the topmost layer; and hence, whether it is storing a zero or a one.

To build a full-scale memory chip based on MTJs is, however, no easy matter. According to Paulo Freitas, an expert on chip manufacturing at the Technical University of Lisbon, magnetic memory elements will have to become far smaller and more reliable than current prototypes if they are to compete with electronic memory. At the same time, they will have to be sensitive enough to respond when the appropriate wires in the control matrix are switched on, but not so sensitive that they respond when a neighboring element is changed. Despite these difficulties, the general consensus is that MTJs are the more promising ideas. Dr. Parkin says his group evaluated the GMR approach and decided not to pursue it, despite the fact that IBM pioneered GMR in hard disks. Dr. Prinz, however, contends that his plan will eventually offer higher storage densities and lower production costs.

Not content with shaking up the multi-billion-dollar market for computer memory, some researchers have even more ambitious plans for magnetic computing. In a paper published last month in science, Russell Cowburn and Mark Welland of Cambridge University outlined research that could form the basis of a magnetic microprocessor—a chip capable of manipulating (rather than merely storing) information magnetically. In place of conducting wires, a magnetic processor would have rows of magnetic dots, each of which could be polarized in one of two directions. Individual bits of information would travel down the rows as magnetic pulses, changing the orientation of the dots as they went. Dr. Cowhurn and Dr. Welland have demonstrated how a logic gate (the basic element of a microprocessor) could work in such a scheme. In their experiment, they fed a signal in at one end of the chain of dots and used a second signal to control whether it propagated along the chain.

It is, admittedly, a long way from a single logic gate to a full microprocessor, but this was true also when the transistor was first invented. Dr. Cowburn, who is now searching for backers to help commercialise the technology, says he believes it will be at least ten years before the first magnetic microprocessor is constructed. But other researchers in the field agree that such a chip is the next

logical step. Dr. Prinz says that once magnetic memory is sorted out "the target is to go after the logic circuits." Whether all magnetic computers will ever be able to compete with other contenders that are jostling to knock electronics off its perch—such as optical, biological and quantum computing—remains to be seen. Dr. Cowburn suggests that the future lies with hybrid machines that use different technologies. But computing with magnetism evidently has an attraction all its own.

17. In developing magnetic memory chips to replace the electronic ones, two alternative research paths are being pursued. These are approaches based on:
    (a) Volatile and non-volatile memories.
    (b) Magneto-resistance and magnetic tunnel junctions.
    (c) Radiation-disruption and radiation-neutral effects.
    (d) Orientation of magnetised spots on the surface of a spinning disk and alignment of magnetic dots on the surface of a conventional memory chip.
18. A binary digit or bit is represented in the magneto-resistance based magnetic chip using
    (a) a layer of aluminium oxide.
    (b) a capacitor.
    (c) a vertical pillar of magnetised material.
    (d) a matrix of wires.
19. In the magnetic tunnel-junctions (MTJs), tunneling is easier when:
    (a) two magnetic layers are polarised in the same direction.
    (b) two magnetic layers are polorised in the opposite directions.
    (c) two aluminium-oxide barriers are polarized in the same direction.
    (d) two aluminium- oxide barriers are polarized in opposite directions.
20. A major barrier on the way to build a full-scale memory chip based on MTJs is:
    (a) The low sensitivity of the magnetic memory elements.
    (b) The thickness of aluminium oxide barriers.
    (c) The need to develop more reliable and far smaller magnetic memory chips.
    (d) All of the above.
21. In the MTJs approach, it is possible to identify whether the topmost layer of the magnetised memory elements is storing a zero or one by:
    (a) Measuring an element's resistance and thus determining its magnetic orientation.
    (b) Measuring the degree of disruption caused by radiation in the elements of the magnetic memory.
    (c) Magnetising the elements either clockwise or anti-clockwise.
    (d) Measuring the current that flows through the sandwich.
22. A line of research which is trying to build a magnetic chip that can both store and manipulate information, is being pursued by:
    (a) Paul Freitas.
    (b) Stuart Parkin.
    (c) Gary Prinz.
    (d) None of the above.
23. Experimental research currently underway, using rows of magnetic dots, each of which could be polarized in one of the two directions, has led to the demonstration of:
    (a) Working of a microprocessor.
    (b) Working of a logic gate.
    (c) Working of a magneto-resistance based chip.
    (d) Working of a magneto tunneling-junction (MTJs) based chip.
24. From the passage, which of the following cannot be inferred?
    (a) Electronic memory chips are faster and non-volatile.
    (b) Electronic and magnetic storage technologies play a complementary role.
    (c) MTJs are the more promising idea, compared to the magneto-resistance approach.
    (d) Non-volatile Electronics is the company set up to commercialise the GMR chips.

Passage 4 (Total Words—1256) (CAT 2000)

The story begins as the European pioneers crossed the Alleghenies and started to settle in the Midwest. The land they found was covered with forests. With incredible effort they felled the trees, pulled the stumps and planted their

crops in the rich, loamy soil. When they finally reached the western edge of the place we now call Indiana, the forest stopped and ahead lay a thousand miles of the great grass prairie. The Europeans were puzzled by this new environment. Some even called it the "Great Desert". It seemed untellable. The earth was often very wet and it was covered with centuries of tangled and matted grasses. With their cast iron plows, the settlers found that the prairie sod could not be cut and the wet earth struck to their plowshares. Even a team of the best oxen bogged down after a few years of tugging. The iron plow was a useless tool to farm the prairie soil. The pioneers were stymied for nearly two decades. Their western march was halted and they filled in the eastern regions of the Midwest.

In 1837, a blacksmith in the town of Grand detour, Illinois, invented a new tool. His name was John Deere and the tool was a plow made of steel. It was sharp enough to cut through matted grasses and smooth enough to cast off the mud. It was a simple tool, the "sod buster" that took the great prairies to agricultural development. Sauk Country, Wisconsin is the part of that prairie where I have a home. It is named after the Sauk Indians. In 1673, father Marquette was the first European to lay his eyes upon their land. He found a village laid out in regular patterns on a plain beside the Wisconsin River. He called the place Prairie Dusac. The village was surrounded by fields that had provided maize, beans and squash for the Sauk People for generations reaching back into the unrecorded time.

When the European settlers arrived at the Sauk prairie in 1837, the government forced the native Sauk people west of the Mississippi River. The settlers came with John Deere's new invention and used the tool to open the area to a new kind of agriculture. They ignored the traditional ways of the Sauk Indian and used their sod-busting tool for planting wheat. Initially, the soil was generous and the farmers thrived. However, each year the soil lost more of its nurturing power. It was only thirty years after the Europeans arrived with their new technology that the land was depleted. Wheat farming became uneconomic and tens of thousands of farmers left Wisconsin seeking new land with sod to bust.

It took the Europeans and their new technology just one generation to make their homeland into a desert. The Sauk Indians who knew how to sustain themselves on the Sauk prairie land were banished to another kind of desert called a reservation. And they even forgot about the techniques and tools that had sustained them on the prairie for generations unrecorded. And that is how it was that three deserts were created—Wisconsin, the reservation and the memories of a people. A century later, the land of the Sauks is now populated by the children of a second wave of European farmers who learned to replenish the soil through the regenerative powers of dairying, ground cover crops and animal manures. These third and fourth generation farmers and townspeople do not realize, however; that a new settler is coming soon with an invention as powerful as John Deere's plow.

The new technology is called 'bereavement counseling'. It is a tool forged at the great state university, an innovative technique to meet the needs of those experiencing the death of a loved one, a tool that can "process" the grief of the people who now live on the Prairie of the Sauk. As one can imagine the final days of the village of the Sauk Indians before the arrival of the settlers with John Deere's plow, one can also imagine these final days before the arrival of the first bereavement counsellor at Prairie Du Sac. In these final days, the farmers and the townspeople mourn at the death of a mother, brother, son or friend. Neighbours join the bereaved and kin, they meet grief together in lamentation, prayer and song, they call upon the words of the clergy and surround themselves in community.

It is in these ways that they grieve and then go on with life. Through their mourning, they are assured of the bonds between them and renewed in the knowledge that this death is a part of the Prairie of the Sauk. Their grief is common property, an anguish from which the community draws strength and gives the bereaved the courage to move ahead.

It is into this prairie community that the bereavement counselor arrives with the new grief technology. The counselor calls the invention a service and assures the prairie folk of its effectiveness and superiority by invoking the name of the great university while displaying a diploma and certificate. At first, we can imagine that the local people will be puzzled by the bereavement counsellor's claim. However, the counselor will tell a few of them that the new technique is merely to assist the bereaved's community at the time of death. To some other prairie folk who are isolated or forgotten, the counselor will approach the Country Board and advocate the right to treatment for these unfortunate souls. This right will be guaranteed by Board's decision to reimburse those too poor to pay for counseling services. There will be others, schooled to believe in the innovative new tools certified by universities and medical centers, who will seek to the bereavement counselor by

force of habit. And one of these people will tell a bereaved neighbour who is unschooled that unless his grief is processed by a counselor, he will probably have major psychological problems in later life, several people will begin to use the bereavement counselor because, since the Country Board now taxes them to insure access to the technology, they will feel that to fail to be counseled is to waste their money, and to be denied a benefit, or even a right.

Finally, one day, an aged father of a Sauk woman will die. And the next-door neighbour will not drop by because he doesn't want to interrupt the bereavement counselor. The woman's kin will stay home because they will have learned that only the bereavement counselor knows how to process grief the proper way. The local clergy will seek technical assistance from the bereavement counselor to learn the correct form of service to deal with guilt and grief. And the grieving daughter will know that it is the bereavement counselor who really cares for her because only the bereavement counselor comes when death visits this family on the Prairie of the Sauk.

It will be only one generation between the bereavement counselor arrives and the community of mourners disappears. The counsellor's new tool will cut through the social fabric. Throwing aside kinship, care, neighbourly obligations and community ways of coming together and going on. Like John Deere's plow, the tools of bereavement counseling will create a desert where a community once flourished. And finally, even the bereavement counselor will see the impossibility of restoring hope in clients once they are genuinely alone with nothing but a service for consolation. In the inevitable failure of the service, the bereavement counsellor will find the deserts even in herself.

25. Which one of the following best describes the approach of the author?
    (a) Comparing experiences with two innovations tried, in order to illustrate the failure of both.
    (b) Presenting community perspectives on two technologies, which have negative effects on people.
    (c) Using the negative outcomes of one innovation to illustrate how 'deserts' have arisen.
    (d) Contrasting two contexts separated in time, to illustrate how 'deserts' have arisen.
26. According to the passage, bereavement handling traditionally involves.
    (a) The community bereavement counselor working with the bereaved to help him/her overcome grief.
    (b) The neighbours and kin joining the bereaved and meeting grief together in mourning and prayer.
    (c) Using techniques developed systematically in formal institutions of learning, a trained counselor helping the bereaved cope with grief.
    (d) The Sauk Indian Chief leading the community with rituals and rites to help lessen the grief of the bereaved.
27. Due to which of the following reasons, according to the author, will the bereavement counselor find the desert even in herself?
    (a) Over a period of time, working with Sauk Indians who have lost their kinship and relationships, she becomes one of them.
    (b) She is working in an environment where the disappearance of community mourners makes her work place a social desert.
    (c) Her efforts at grief processing with the bereaved will fail as no amount of professional service can make up for the loss due to the disappearance of community mourners.
    (d) She has been working with people who have settled for a long time in the Great Desert.
28. According to the author, the bereavement counsellor is:
    (a) A friend of the bereaved helping him or her handle grief.
    (b) An advocate of the right to treatment for the community.
    (c) A kin of the bereaved helping the bereaved handle grief.
    (d) A formally trained person helping the bereaved handle grief.
29. The Prairie was a great puzzlement for the European pioneers because:
    (a) It was covered with thick, untellable layers of grass over a vast stretch.
    (b) It was a large desert immediately next to lush forests.
    (c) It was rich cultivable land left fallow for centuries.
    (d) It could be easily tilled with iron plows.

30. Which of the following does the 'desert' in the passage refer to?
    (a) Prairie soil depleted by cultivation of wheat.
    (b) Reservations in which native Indians were resettled.
    (c) Absence of, and emptiness in, community kinship and relationships.
    (d) All of the above.
31. According to the author, people will begin to utilize the service of the bereavement counselor because:
    (a) New Country regulations will make them feel it is a right, and if they don't use it, it would be a loss.
    (b) The bereaved in the community would find her a helpful friend.
    (c) She will fight for subsistence allowance from the Country Board for the poor among the bereaved,
    (d) Grief processing needs tools certified by universities and medical centers.
32. Which one of the following parallels between the plow and bereavement counseling is not claimed by the author?
    (a) Both are innovative technologies.
    (b) Both result in migration of the communities into which the innovations are introduced.
    (c) Both lead to deserts in the space of only one generation.
    (d) Both are tools introduced by outsiders entering existing communities.

Passage 5 (Total Words—1028) (CAT 2000)

The teaching and transmission of North Indian classical music is, and long has been, achieved by largely oral means. The raga and its structure, the often breathtaking intricacies of tala or rhythm, and the incarnation of raga and tala as bandish or composition, are passed thus, between guru and Shishya by word of mouth and direct demonstration, with no printed sheet of notated music, as it were, acting as a go-between. Saussure's conception of language as a communication between addresser and addressee is given, in this model, a further instance, and a new, exotic complexity and glamour.

These days, especially with the middle class having entered the domain of classical music and playing not a small part in ensuring the continuation of this ancient tradition, the tape recorder serves as a handy technological slave and preserves, from oblivion, the vanishing, elusive moment of oral transmission. Hoary gurus, too, have seen the advantage of this device, and increasingly use it as an aid to instructing their pupils; in place of the shawls and other traditional objects that used to pass from shishya to guru in the past, as a token of the regard of the former for the latter, it is not unusual, today, to see cassettes changing hands.

Part of my education in North Indian classical music was conducted via this rather ugly but beneficial rectangle of plastic, which I carried with me to England when I was an undergraduate. One cassette had stored in it various talas played upon the tabla, at various tempos, by my music teacher's brother-in-law, Hazarilalji, who was a teacher of Kathak dance, as well as a singer and a tabla player. This was a work of great patience and prescience, a one-and-a-half hour performance without any immediate point or purpose, but intended for some delayed future moment when I'd practice the talas solitarily.

This repeated playing out of the rhythmic cycles on the tabla was inflected by the noises – an irate auto driver blowing a horn; the sound of overbearing pigeons that were such a nuisance on the banister; even the cry of a kulfi seller in a summer—entering from the balcony of the third floor flat we occupied in those days, in a lane in a Bombay suburb, before we left the city for good. These sounds, in turn, would invade, hesitantly, the ebb and flow of silence inside the artificially heated room, in a borough of west London, in which I used to live as an undergraduate. There, in the trapped dust, silence and heat, the theka of the tabla, qualified by the imminent but intermittent presence of the Bombay suburb, would come to life again. A few years later, the tabla and, in the background, the pigeons and the itinerant kulfi seller, would inhabit a small graduate room in oxford.

The tape recorder, though, remains an extension of the oral transmission of music, rather than a replacement of it. And the oral transmission of North Indian classical music remains, almost uniquely, a testament to the fact that the human brain can absorb, remember and reproduce structures of great complexity and sophistication without the help of the hieroglyph or written mark or a system of notation. I remember my surprise on discovering that Hazarilalji—who has mastered Kathak dance, tala and North Indian classical music, and who used to narrate to

me, occasionally, compositions meant for dance that were grand and intricate in their verbal prosody, architecture and rhythmic complexity—was near illiterate and had barely learnt to write his name in large and clumsy letters.

Of course, attempts have been made, throughout the 20th century, to formally codify and even notate this music, and institutions set up and degrees created, specifically to educate students in this "scientific" and codified manner. Paradoxically, however, this style of teaching has produced no noteworthy student or performer; the most creative musicians still emerge from the guru-shishya relationship, their understanding of music developed by oral communication.

The fact that North Indian classical music emanates from, and evolved through, oral culture, means that this music has a significantly different aesthetic, and that this aesthetic, has a different politics, from that of Western classical music. A piece of music in the Western tradition, at least in its most characteristic and popular conception, originates in its composer, and the connection between the two, between composer and the piece of music, is relatively unambiguous precisely because the composer writes down, in notation, his composition, as a poet might write down and publish his poem. However far the notion of property remains at the heart of the Western conception of "genius", which derives from the Latin gignere or 'to beget'.

The genius in Western classical music is, then, the originator, begetter and owner of his work—the printed, notated sheet testifying to his authority over his product and his power, not only of expression or imagination, but of origination. The conductor is a custodian and guardian of this property. Is it an accident that Mandelstam, in his notebooks, compares—celebratorily—the conductor's baton to a policeman's saying all the music of the orchestra lies mute within it, waiting for its first movement to release it into the auditorium. The raga-transmitted through oral means is, in a sense, no one's property; it is not easy to pin down its source, or to know exactly where its provenance or origin lies. Unlike the Western classical tradition, where the composer begets his piece, notates it and stamps it with his ownership and remains, in effect, larger than, or the father of, his work, in the North Indian classical tradition, the raga—unconfined to a single incarnation, composer or performer—remains necessarily greater than the artiste who invokes it.

This leads to a very different politics of interpretation and valuation, to an aesthetic that privileges the evanescent moment of performance and invocation over the controlling authority of genius and the permanent record. It is a tradition, thus, that would appear to value the performer, as medium, more highly than the composer who presumes to originate what, effectively, couldn't be originated in a single person, because the raga is the inheritance of a culture.

33. The author's contention that the notion of property lies at the western conception of genius is best indicated by which one of the following?
    (a) The creative output of a genius is invariably written down and recorded.
    (b) The link between the creator and his output is unambiguous.
    (c) The word "genius" is derived from a Latin word which means, "to beget".
    (d) The music composer notates his music and thus becomes the "father" of a particular piece of music.
34. Saussure's conception of language as a communication between addresser and addressee, according to the author, is exemplified by the:
    (a) Teaching of North Indian classical music by word of mouth and direct demonstration.
    (b) Use of the recorded cassette as a transmission medium between the music teacher and the trainee.
    (c) Written down notation sheets of musical compositions.
    (d) Conductor's baton and the orchestra.
35. The author holds that the "rather ugly but beneficial rectangle of plastic" has proved to be a "handy technological slave" in:
    (a) Storing the talas played upon the tabla, at various tempos.
    (b) Ensuring the continuance of an ancient tradition.
    (c) Transporting North Indian classical music across geographical borders.
    (d) Capturing the transient moment of oral transmission.
36. The oral transmission of North Indian classical music is an almost unique testament of the:
    (a) Efficacy of the guru-shishya tradition.
    (b) Learning impact of direct demonstration.
    (c) Brain's ability to reproduce complex structures without the help of written marks.

(d) Ability of an illiterate person to narrate grand and intricate musical compositions.

37. According to the passage, in the North Indian classical tradition, the raga remains greater than the artiste who invokes it. This implies an aesthetic which
    (a) Emphasises performance and invocation over the authority of genius and permanent record.
    (b) Makes the music no one's property.
    (c) Values the composer more highly than the performer.
    (d) Supports oral transmission of traditional music.
38. From the author's explanation of the notion that in the Western tradition, music originates in its composer, which one of the following cannot be inferred?
    (a) It is easy to transfer a piece of Western classical music to a distant place.
    (b) The conductor in the Western tradition, as a custodian, can modify the music, since it 'lies mute' in his baton.'
    (c) The authority of the Western classical music composer over his music product is unambiguous.
    (d) The power of the Western classical music composer extends to the expression of his music.
39. According to the author; the inadequacy of teaching North Indian classical music through a codified, notation based system is best illustrated by:
    (a) A loss of the structural beauty of the ragas.
    (b) A fusion of two opposing approaches creating mundane music.
    (c) The conversion of free-flowing ragas into a stilted set piece.
    (d) Its failure to produce any noteworthy student or performer:
40. Which of the following statements best conveys the overall idea of the passage?
    (a) North Indian and Western classical music are structurally different.
    (b) Western music is the intellectual property of the genius while the North Indian raga is the inheritance of a culture.
    (c) Creation as well as performance are important in the North Indian classical tradition.
    (d) North Indian classical music is orally transmitted while Western classical music depends on written down notations.

IV

Passage 1 (Total Words—435) (CAT 1998)

Emile Durkheim, the first person to be formally recognized as a sociologist and the most scientific of the pioneers, conducted a study that stands as a research model for sociologists today. His investigation of suicide was, in fact, the first sociological study to use statistics. In 'Suicide' (1964, originally published in 1897) Durkheim documented his contention that some aspects of human behaviour—even something as allegedly individualistic as suicide—can be explained without reference to individuals.

Like all of Durkheim's work, suicide must be viewed within the context of his concern for social integration. Durkheim wanted to see if suicide rates within a social entity (for example a group, organization, or society) are related to the degree to which individuals are socially involved (integrated and regulated). Durkheim described three types of suicide; egoistic, anomic, and altruistic. Egoistic suicide is promoted when individuals do not have sufficient social ties. Since single (never married) adults, for example, are not heavily involved with family life, they are more likely to commit suicide than are married adults. Altruistic suicide on the other hand, is more likely to occur when social integration is too strong. The ritual suicide of Hindu widows on their husband's funeral pyres is one example. Military personnel, trained to lay down their lives for their country, provide another illustration.

Durkheim's third type of suicide—anomic suicide—increases when the social regulation of individuals is disrupted. For example, suicide rates increase during economic depressions. People who suddenly find themselves without a job or without hope of finding one are more prone to kill themselves. Suicides may also increase during periods of prosperity. People may loosen their social ties by taking new jobs, moving to new communities, or finding new mates.

Using data from the government population reports of several countries (much of it from the French Government Statistical Office), Durkheim found strong support for his line of reasoning. Suicide rates were higher among single than married people, among military personnel than civilians, among divorced than married people, and among people involved in nationwide economic crises.

It is important to realize that Durkheim's primary interest was not in the empirical (observable) indicators he used such as suicide rates among military personnel,

married people and so forth. Rather, Durkheim used the following indicators to support several of his contentions: (1) social behaviour can be explained by social rather than psychological factors: (2) suicide is affected by the degree of integration and regulation within social entities; and (3) since society can be studied scientifically, sociology is worthy of recognition in the academic world. Durkheim was successful on all three counts.

1. In his study of suicide, Durkheim's main purpose was:
   (a) to document that suicide can be explained without reference to the individual.
   (b) to provide an explanation of the variation in the rate of suicide across societies.
   (c) to categorise various types of suicides.
   (d) to document that social behaviour can be explained by social rather than psychological factors.
2. According to Durkheim, suicide rates within a social entity can be explained in terms of:
   (a) absence of social ties.
   (b) disruption of social regulation.
   (c) nature of social integration.
   (d) all of the above.
3. Since single adults are not heavily involved with family life they are more likely to commit suicide, which Durkheim categorized as:
   (a) anomic suicide.
   (b) altruistic suicide.
   (c) egoistic suicide.
   (d) (b) and (c).
4. Higher suicide rates during rapid progress in a society is a manifestation of:
   (a) altruistic suicide.
   (b) anomic suicide.
   (c) egoistic suicide.
   (d) None of the above.
5. Ritual suicide of Hindu widows on their husband's funeral pyres was:
   (a) a manifestation of strong social integration.
   (b) an example of brutality against women.
   (c) an example of anomic suicide.
   (d) an example of egoistic suicide.
6. Increase in the suicide rate during economic depression is an example of
   (a) altruistic suicide.
   (b) anomic suicide.
   (c) egoistic suicide.
   (d) both (a) and (c).
7. According to Durkheim, altruistic suicide is more likely among:
   (a) military personnel than among civilians.
   (b) single people than among married people.
   (c) divorcees than among married people.
   (d) people involved in nationwide economic crises.
8. To support his contentions, Durkheim relied on the following indicators:
   (a) Social behaviour is explicable predominantly through social factors.
   (b) Suicide is contingent upon the degree of regulation and interaction.
   (c) Recognising sociology to acknowledge that society is susceptible to scientific investigation.
   (d) All of the above.
9. Basing himself on his own indicators, Durkheim was:
   (a) Right on some counts, not others.
   (b) Vindicated on all counts.
   (c) Wrong but did not realize that he was right.
   (d) Substantially correct but formally wrong.

Passage 2 (Total Words—813) (CAT 1998)

How quickly things change in the technology business! A decade ago, IBM was the awesome and undisputed king of the computer trade, universally feared and respected. A decade ago, two little companies called Intel and Microsoft were mere blips on the radar screen of the industry, upstart startups that had signed on to make the chips and software for IBM's new line of personal computers. Though their products soon became industry standards, the two companies remained protected children of the market leader.

What has happened since is a startling reversal of fortune. IBM is being ravaged by the worst crisis in the company's 79-year history. It is undergoing its fifth restructuring in the past seven years as well as seemingly

endless rounds of job cuts and firings that have eliminated 100,000 jobs since 1985. Last week, IBM announced to its shell-shocked investors that it lost $4.97 billion last year—the biggest loss in American corporate history.

And just when IBM is losing ground in one market after another, Intel and Microsoft have emerged as the computer industry's most fearsome pair of competitors. The numbers on Wall Street tell a stunning story. Ten years ago, the market value of the stock of Intel and Microsoft combined amounted to about a tenth of IBM's. Last week, with IBM's stock at an 11 year low, Microsoft's value surpassed its old mentor's for the first time ever($26.76 billion to $26.48 billion), and Intel ($24.3 billion) is not far behind. While IBM is posting losses, Intel's profits jumped 30% and Microsoft's rose 44%.

Both Intel, the world's largest supplier of computer chips, and Microsoft, the world's largest supplier of computer software, have assumed the role long played by Big Blue as the industry's pacesetter. What is taking place is a generational shift unprecedented in the information age—one that recalls transition in the U.S. auto industry 70 years ago, when Alfred Sloan's upstart General Motors surpassed Ford Motors as America's No. 1 car maker. The transition also reflects the decline of computer manufacturers such as IBM, Wang and Unisys, and the rise of companies like Microsoft, Intel and AT&T that create the chips and software to make the computers work. Just like Dr. Frankenstein, IBM created these two monster competitors, says Richard Shaffer, publisher of the Computer Letter. Now, even IBM is in danger of being trampled by the creations it unleashed.

Although Intel and Microsoft still have close relationships with Big Blue, there is little love lost between IBM and its potent progeny. IBM had an ugly falling-out with former partner Microsoft over the future of personal-computer software. Microsoft developed the now famous disk operating system for the IBM-PC called DOS—and later created the operating software for the next generation of IBM personal computers, the Personal System/2. When PS/2 and its operating system, OS/3, failed to catch on, a feud erupted over how the two companies would upgrade the system. Although they publicly patched things up, the partnership was tattered. IBM developed its own version of OS/3, which has so far failed to capture the industry's imagination, Microsoft's competing version, dubbed New Technology, or NT, will debut in a few months and will incorporate Microsoft's highly successful Windows program, which lets users juggle several programs at once. Windows NT however, will offer more new features, such as the ability to link many computers together in a network and to safeguard them against unauthorized use.

IBM and Intel have also been parting company. After relying almost exclusively on the Santa Clara, California company for the silicon chips that serve as computer brains, IBM has moved to reduce its dependence on Intel by turning to competing vendors. In Europe, IBM began selling a low-cost line of PCs called Ambra, which runs on chips made by Intel rival Advanced Micro Devices. IBM also demonstrated a sample PC using a chip made by another Intel enemy, Cyrix. And last October, IBM said it would begin selling the company's own chips to outsiders, in direct competition with Intel.

IBM clearly feels threatened. And the wounded giant still poses the biggest threat to any future dominance by Intel and Microsoft. Last year, it teamed up with both companies' most bitter rivals—Apple Computers and Motorola—to develop advanced software and microprocessors for a new generation of desktop computers. In selecting Apple and Motorola, IBM bypassed its longtime partners. Just as Microsoft's standard operations system runs only on computers built around Intel's computer chips, Apple's software runs only on Motorola's chips. Although IBM has pledged that the new system will eventually run on a variety of machines, it will initially run only computer programs written for Apple's Macintosh or IBM's OS/2. Its competitive juices now flowing, IBM last week announced that it and Apple Computer will deliver the operating system in 1994—a year ahead of schedule.

10. As a result of greater competition in the US Computer industry:
    (a) Some computer companies are expanding while others are contracting.
    (b) Employment in the industry is going down.
    (c) The industry is becoming more monopolized.
    (d) The share value of IBM is going up relative to that of Intel and Microsoft.
11. Why is something that happened 70 years ago in the US auto industry being mentioned here?
    (a) General Motors broke away from Ford Motors.
    (b) A new company went ahead of an established market leader.

(c) Like Dr. Frankenstein, Ford Motor created a monster in General Motors.
(d) Microsoft, Intel and AT&T were originally created by IBM.

12. Who is mentioned as the principal supplier of silicon chips to IBM?
(a) AT&T
(b) Microsoft
(c) Cyrix
(d) Intel

13. The personal computer called Ambra is marketed by:
(a) Cyrix
(b) IBM
(c) Intel
(d) Microsoft

14. What was the original reason for the feud between IBM and Microsoft?
(a) The two companies developed competing softwares.
(b) Microsoft and Intel teamed up against IBM.
(c) IBM began to purchase microchips from Intel instead of Microsoft.
(d) IBM made losses while Microsoft made profits.

15. Which of the following statements is not implied by the passage?
(a) The makers of microchips and softwares are becoming leaders in the computer industry.
(b) Wang and Unisys are primarily manufacturers of computers.
(c) IBM laying off workers is the biggest job cut in American corporate history.
(d) Intel is based in California.

16. Which of the following statements is true?
(a) IBM plans to introduce a new system that will run on a variety of machines.
(b) IBM's new generation desk top computers will run only on Motorola's chips.
(c) IBM is working out a joint strategy with Apple to force Motorola to supply chips at a lower price.
(d) IBM is going to sell its own chips to Apple and Motorola.

17. Many computers would be linked together through a network in a system developed by:
(a) IBM
(b) Apple
(c) Microsoft
(d) None of the above.

18. One possible conclusion from the passage is that:
(a) Share prices are not a good indicator of a company's performance.
(b) Firing workers restore a company's health.
(c) All companies ultimately regret being a Dr. Frankenstein to some other company.
(c) Consumers gain as a result of competition among producers.

Passage 3 (Total Words—1284) (CAT 1998)

Environmental protection and management is deservedly attracting a lot of attention these days. This is a desirable development in the face of the alarming rate of natural resource degradation which greatly hampers their optimal utilization. When waste waters emanating from municipal sewage, industrial effluent, agricultural and land runoffs, find their way either to ground water reservoirs or other surface water sources, the quality of water deteriorates, rendering it unfit for use. The natural balance is disturbed when concentrated discharges of waste water is not controlled. This is because the cleansing forces of nature cannot do their job in proportion to the production of filthy matter.

According to the National Environment Engineering and Research Institute (NEERI), a staggering 70 per cent of water available in the country is polluted. According to the Planning Commission, "From the Dal lake in the North to the Periyar and Chaliyar rivers in the South, from Damodar and Hoogly in the East to the Thane creek in the West, the picture of water pollution is uniformly gloomy. Even our large perennial rivers, like the Ganga, are today heavily polluted."

According to one study, all the 14 major rivers of India are highly polluted. Besides the Ganga, these rivers include the Yamuna, Narmada, Godavari, Krishna and Cauvery. These rivers carry 85 percent of the surface runoff and their drainage basins cover 73 percent of the country. The pollution of the much revered Ganga is due in particular to

municipal sewage that accounts for 3/4th of its pollution load. Despite India having legislation on water pollution [The water (Prevention and Control of Pollution) Act, 1974] and various water pollution control boards, rivers have today become synonymous with drains and sewers.

Untreated community wastes discharged into water courses from human settlements account for four times as much waste water as industrial effluent. Out of India's 3,119 towns and cities, only 217 have partial (209) or full (8) sewerage treatment facilities and cover less than a third of the urban population, Statistics from a report of the Central Board for Prevention and Control of Water Pollution reveal that 1,700 of 2,700 water using industries in India, are polluting the water around their factories. Only 160 industries have waste water treatment plants. One estimate suggests that the volume of waste water of industrial origin will be comparable to that of domestic sewage in India by 2000 A.D. Discharges from agricultural fields, which carry fertilizing ingredients of nitrogen, phosphorus and pesticides are expected to be three times as much as domestic sewage. By that date, thermal pollution generated by discharges from thermal power plants will be the largest in volume.

Toxic effluents deplete the level of oxygen in the rivers, endanger all aquatic life and render water absolutely unfit for human consumption, apart from affecting industrial production. Sometimes, these effects have been disastrous. A recent study reveals that the water of the Ganga, Yamuna, Kali and Hindon rivers have considerable concentration of heavy metals due to inflow of industrial wastes, which pose a serious health hazard to the millions living on their bands. Similarly, the Cauvery and Kapila rivers in Karnataka have been found to contain metal pollution which threatens the health of people in riverine towns. The Periyar, the largest river of Kerala, receives extremely toxic effluent that result in high incidence of skin problems and fish kills. The Godavari of Andhra Pradesh and the Damodar and Hoogly in West Bengal receive untreated industrial toxic wastes. A high level of pollution has been found in the Yamuna, while the Chambal of Rajasthan is considered the most polluted river in Rajasthan. Even in industrially backward Orissa, the Rushikula river is extremely polluted. The fate of the Krishna in Andhra Pradesh, the Tungabhadra in Karnataka, the Chaliyar in Kerala, the Gomati in U.P., the Narmada in M.P. and the Sone and the Subarnarekha rivers in Bihar is no different.

According to the W.H.O., eighty percent of diseases prevalent in India are water-borne; many of them assume epidemic proportions. The prevalence of these diseases heighten under conditions of drought. It is also estimated that India loses as many as 73 million man days every year due to water borne diseases, costing Rs. 600 crore by way of treatment expenditure and production losses. Management of water resources with respect to their quality also assumes greater importance especially when the country can no more afford to waste water.

The recent Clean-the-Ganga Project, with an action plan estimated to cost the exchequer Rs. 250 crore (which has been accorded top priority) is a trend setter in achieving this goal. The action plan evoked such great interest that offers of assistance have been received from France, U.K., U.S. and the Netherlands, as also from the World Bank. This is indeed laudable. Poland too has now joined this list.

The very fact that these countries have volunteered themselves to contribute their mite is a healthy reflection of global concern over growing environmental degradation and the readiness of the international community to participate in what is a truly formidable task. It may be recalled that the task of cleansing the Ganga along the Rishikesh-Hardwar stretch under the first phase of the Ganga Action Plan, has been completed and the results are reported to be encouraging.

The crisis of drinking water is deepening because water resources are drying up and the lowering of ground water through over pumping, this is compounded by the pollution of water resources. All these factors increase the magnitude of the problem. An assessment of the progress achieved by the end of March 1985, on completion of the first phase of the International Drinking Water Supply and Sanitation Decade (1981–91), reveals that drinking water has been made available to 73 percent of the urban population and 56 percent of the rural population only. This means that nearly half the country's rural population has to get drinking water facilities. This needs to be urgently geared up especially when considered against the Government's professed objective of providing safe drinking water and sanitation to all by the end of the International Drinking Water Supply and Sanitation Decade, i.e., March 1991. The foremost action in this would be to clean up our water resources.

As per surveys conducted by the NEERI, per capita drinking water losses in different cities in the country range between 11,000 to 31,000 liters annually. This indicates a

waste level of 20–35 percent of the total flow of water in the distribution system, primarily due to leaks in mains and household service pipes. Preventive maintenance programme would substantially reduce losses/wastages and would certainly go a long way in solving the problem.

According to the Union Ministry of Works and Housing, out of 2.31 lakh problem villages identified in 1980, 1.92 lakh (83 percent) villages have been provided with at least one source of drinking water as of March 1986. The balance (38,748) villages are expected to be covered during the seventh plan. A time-bound national policy on drinking water is being formulated by Government, wherein the task is proposed to be completed by the end of the seventh plan. An outlay of Rs. 6,522.47 crores has been allotted for the water supply and sanitation sector in the seventh plan period, against an outlay of Rs. 3,922.02 crores in the sixth plan. Of this, outlay for rural water supply sector is Rs. 3,454.47 crores. It is expected that this outlay would help to cover about 86.4 percent of the urban and 82.2 percent of the rural population with safe drinking water facilities by March 1991. Hygienic sanitation facilities would be provided to 44.7 per cent and 1.8 percent of the urban and rural population respectively within, the same period.

19. The degradation of natural resources will necessarily lead to:
    (a) poor economic utilization of resources.
    (b) contamination of water from municipal sewage.
    (c) water unfit for human consumption.
    (d) None of the above.
20. According to NEERI:
    (a) the extent of water pollution in the Dal Lake is grim.
    (b) seventy percent of total water available in the country is polluted.
    (c) only 217 out of 3119 towns and cities have sewage treatment facilities.
    (d) all the 14 major rivers of India are highly polluted.
21. Municipal sewage pollutants account for:
    (a) the lowest percentage of water pollution.
    (b) seventy five percent of the Ganga's water pollution load.
    (c) twice the volume of the waste water of industrial origin.
    (d) three times as much as the discharge from agricultural fields.
22. Which of the following statements is correct?
    (a) The river Periyar is in South India.
    (b) The river Periyar is the largest river of Kerala.
    (c) The river Gomti is also extremely polluted.
    (d) All of the above are correct.
23. The cost of the Clean-the-Ganga Pollution Project Action Plan is likely to be sourced from:
    (a) the Indian Exchequer.
    (b) France, U.K., U.S and the Netherlands.
    (c) the World Bank, Poland, U.K.
    (d) the U.S., U.K., Netherlands, Poland, France, the World Bank and India.
24. Which of the following statements made by the WHO is correct?
    (a) Water-borne diseases account for eighty per cent of all diseases prevalent in India.
    (b) Water-borne diseases in India create a loss of Rs. 600 crores every year.
    (c) Both (a) and (b) are correct.
    (d) None of the above.
25. Considerable amounts of metal pollutants are found in the river(s):
    (a) Chambal of Rajasthan.
    (b) Rushikula in Orissa.
    (c) Damodar, Hoogly,, Krishna and Gomti.
    (d) Ganga, Yamuna, Kali, Hindon, Cauvery and Kapila.
26. The crisis of drinking water is caused chiefly by:
    (a) the green house effect.
    (b) water pollution caused by industrial development.
    (c) drying up of water sources and over- pumping.
    (d) increasing urbanization.
27. The best remedy for water shortage lies in:
    (a) putting up more pumps in rural areas.
    (b) cleaning up polluted water.
    (c) reducing the waste level of 25–30 per cent of the total flow of water.
    (d) constructing large-sized dams.

28. Out of the total outlay for water supply and sanitation in the seventh plan, rural water supply sector would receive
    (a) about 53 percent.
    (b) over 80 percent.
    (c) between 65 and 80 per cent.
    (d) equal to 44.7 percent.

Passage 4 (Total Words—843) (CAT 1998)

To teach is to create a space in which obedience to truth is practiced. Space may sound like a vague, poetic metaphor until we realize that it describes experiences of everyday life. We know what it means to be in a green and open field; we know what it means to be on a crowded rush hour bus. These experiences of physical space have parallels in our relations with others. On our jobs, we know what it is to be pressed and crowded, our working space diminished by the urgency of deadlines and competitiveness of colleagues.

But then there are times when deadlines disappear and colleagues cooperate, when everyone has space to move, invent and produce with energy and enthusiasm. With family and friends, we know how it feels to have unreasonable demands placed upon us, to be boxed in the expectations of those nearest to us. But then there are times when we feel accepted for who we are (or forgiven for who we are not), times when a spouse or a child or a friend gives us the space both to be and to become.

Similar experiences of crowding and space are found in education. To sit in a class where the teacher stuffs our minds with information, organizes it with finality, insists on having the answers while being utterly uninterested in our views, and forces us into a grim competition for grades—to sit in such a class is to experience a lack of space for learning. But to study with a teacher who not only speaks but also listens, who not only gives answers but asks questions and welcomes our insights, who provides information and theories that do not close doors but open new ones, who encourages students to help each other learn—to study with such a teacher is to know the power of a learning space.

A learning space has three essential dimensions: openness, boundaries and an air of hospitality. To create open learning space is to remove the impediments to learning that we find around and within us: we often create them ourselves to evade the challenge of truth and transformation. One source of such impediments is our fear of appearing ignorant to others or to ourselves. The openness of a space is created by the firmness of its boundaries. A learning space cannot extend indefinitely; if it did, it would not be a structure for learning but an invitation for confusion and chaos. When space boundaries are violated, the quality of space suffers. The teacher who wants to create an open learning space must define and defend its boundaries with care, because the pursuit of truth can often be painful and discomforting, the learning space must be hospitable. Hospitality means receiving each other, our struggles, our new-born ideas with openness and care. It means creating an ethos in which the community of truth can form and the pain of its transformation be borne. A learning space needs to be hospitable not to make learning painless, but to make painful things possible, things without which no learning can occur—things like exposing ignorance, testing tentative hypotheses, challenging false or partial information, and mutual criticism of thought.

The task of creating learning space with qualities of openness, boundaries and hospitality can be approached at several levels. The most basic level is the physical arrangement of the classroom. Consider the traditional classroom setting with row upon row of chairs facing the lectern where learning space is confined to the narrow alley of attention between each student and teacher. In this space, there is no community of truth, hospitality or room for students to relate to the thoughts of each other. Contrast it with the chairs placed in a circular arrangement, creating an open space within which learners can interconnect. At another level, the teacher can create conceptual space—with words, in two ways. One is through assigned reading; the other is through lecturing. Assigned reading, not in the form of speed reading several hundred pages, but contemplative reading which opens, not fills, our learning space. A teacher can also create a learning space by means of lectures. By providing critical information and a framework of interpretation, a lecturer can lay down the boundaries within which learning occurs.

We also create learning space through the kind of speech we utter and the silence from which true speech emanates. Speech is a precious gift and a vital tool, but too often our speaking is an evasion of truth, a way of buttressing our self-serving reconstructions of reality. Silence must therefore be an integral part of learning space. In silence, more than in arguments, our mind-made world falls away

and must also create emotional space in the classroom, space that allow feeling to arise and be dealt with because submerged feelings can undermine learning. In an emotionally honest learning space, one created by a teacher who does not fear dealing with feelings, the community of truth can flourish between us and we can flourish in it.

29. Which of the following statements best describes the author's conception of learning space?
    (a) Where the teacher is friendly.
    (b) Where there is no grim competition for grades.
    (c) Where the students are encouraged to learn about space.
    (d) Where the teacher provides information and theories which open new doors and encourages students to help each other learn.
30. The statements 'the openness of a space is created by the firmness of its boundaries' appears contradictory. Which of the following statements provides the best justification for the proposition?
    (a) We cannot have a space without boundaries.
    (b) Bounded space is highly structured.
    (c) When space boundaries are violated, the quality of space suffers.
    (d) A teacher can effectively defend a learning space without boundaries.
31. According to the author, learning is a painful process because:
    (a) It exposes our ignorance.
    (b) Our views and hypotheses are challenged.
    (c) It involves criticizing the views of others.
    (d) Of all of the above reasons.
32. The task of creating learning space with qualities of openness, boundaries and hospitality is multidimensional. It involves operating at:
    (a) Psychological and conceptual levels.
    (b) Physical, perceptual and behavioral levels.
    (c) Physical, conceptual and emotional levels.
    (d) Conceptual, verbal and sensitive levels.
33. According to the author, silence must be an integral part of learning space because:
    (a) Silence helps to unite us with others to create a community of truth.
    (b) Silent contemplation prepares us to construct our mind-made world.
    (c) Speaking is too often an exercise in the evasion of truth.
    (d) Speaking is too often a way of buttressing our self-serving reconstruction of reality.
34. According to the author, an effective teacher does not allow
    (a) feelings to arise within the learning space.
    (b) silence to become an integral part of the learning space.
    (c) learning space to be filled by speed reading of several hundred pages of assigned reading.
    (d) violation of learning space boundaries.
35. Understanding the notion of space in our relations with others is:
    (a) To acknowledge the beauty of poetic metaphor.
    (b) Exclusively rooted in our experiences of physical space.
    (c) To accept a spiritual dimension in our dealings with our peers.
    (d) To extend the parallel of physical space to our experiences in daily life.
36. Another way of describing the author's notion of learning space can be summarized in the following manner.
    (a) It is vital that learning be accompanied by unlearning.
    (b) Learning encompasses such elements as courage, dignity and endeavor.
    (c) An effective teacher recognizes the value of empathy.
    (d) Encourage good learners, discourage indifferent ones.
37. Conceptual space with words can be created by
    (a) Assigned reading and lecturing.
    (b) Speed reading and written comprehension.
    (c) Gentle persuasion and deliberate action.
    (d) Creative extrapolation and illustrations.
38. An emotionally honest learning space can only be created by:
    (a) A teacher committed to join the community.
    (b) A teacher who is not afraid of confronting feelings.
    (c) A teacher who takes care not to undermine the learning process.
    (d) A teacher who worships critical silence.

Passage 5 (Total Words—602) (CAT 1998)

Management education gained new academic stature within US Universities and greater respect from outside during the 1960s and 1970s. Some observers attribute the competitive superiority of US corporations to the quality of business education. In 1978, a management professor, Herbert A. Simon of Carnegie Mellon University, won the Nobel Prize in economics for his work in decision theory. And the popularity of business education continued to grow since 1960's and the MBA has become known as the passport to the good life.

By the 1980s, however, US business schools faced critics who charged that learning had little relevance to real business problems. Some went so far as to blame business schools for the decline in US competitiveness.

Amidst the criticisms, four distinct arguments may be discerned. The first is that business schools must be either unnecessary or deleterious because Japan does so well without them. Underlying these arguments is the idea that management ability cannot be taught—one is either born with it or must acquire it over years of practical experience. A second argument is that business schools are overly academic and theoretical. They teach quantitative models that have little application to real world problems. Third, they give inadequate attention to shop floor issues, to production processes and to management resources. Finally, it is argued that they encourage undesirable attitudes in students, such as placing value in the short term, on bottom line targets, while neglecting longer term developmental criteria. In summary, some business executives complain that MBA's are incapable of making day-to-day peritoneal decisions, unable to communicate and to motivate people, and unwilling to accept responsibility for following through implementation plans. We shall analyze these criticisms after having reviewed experiences in other countries.

In contrast to be the expansion and development of business education in the United States and more recently in Europe, Japanese business schools graduate no more than two hundred MBA's each year. The Keio Business School (KBS) was the only graduate school of management in the entire country until the mid 1970s and it still boasts the only two-year masters programme. The absence of business schools in Japan would appear in contradiction with the high priority placed upon learning by its Confucian culture. Confucian colleges taught administrative skills as early as 1630 and Japan wholeheartedly accepted Western learning following the Meiji restoration of 1868 when hundreds of students were dispatched to universities in the U.S.A., Germany, England and France, to learn the secrets of western technology and modernization. Moreover, the Japanese educational system is highly developed and intensely competitive and can be credited for raising the literary and mathematical abilities of the Japanese to the highest level in the world.

Until recently, Japanese corporations have not been interested in using either local or foreign business schools for the development of their future executives. Their in-company-training programmers have sought the socialization of newcomers, the younger the better. The training is highly specific and those who receive it, have neither the capacity nor the incentive to quit. The prevailing belief says Imai, is that management should be borne out of experience and many years of effort and not learnt from educational institutions. A 1960 survey of Japanese senior executives confirmed that a majority (54%) believed that managerial capabilities can be attained only on the job and not in universities.

However, this view seems to be changing, the same survey revealed that even as early as 1960, 37% of senior executives felt that the universities should teach integrate professional management. In the 1980s, a combination of increased competitive pressures and greater multinationalisation of Japanese business are making the Japanese take a fresh look at Management Education.

39. The 1960s and 1970s can best be described as a period
    (a) when quality business education contributed to the superiority of US corporations.
    (b) when the number of MBA's rose from under 5,000 to over 50,000.
    (c) when management education gained new academic stature and greater respect.
    (d) when the MBA became more disreputable.
40. According to the passage,
    (a) learning, which was useful in the 1960s and 1970's became irrelevant in the 1980s.
    (b) management education faced criticisms in the 1980s.
    (c) business schools are insensitive to the needs of industry.
    (d) by the 1980s, business schools contributed to the decline in US competitiveness.

41. The growth in the popularity of business schools among students was most probably due to
    (a) Herber A. Simon, a management professor winning the Nobel Prize in economics.
    (b) the gain in academic stature.
    (c) the large number of MBA degrees awarded.
    (d) a perception that it was a 'passport to the good life'.
42. A criticism that management education did not face was that:
    (a) it imparted poor quantitative skills to MBAs.
    (b) it was unnecessary and deleterious.
    (c) it was irrevocably irrelevant.
    (d) it inculcated undesirable attitudes in students.
43. US business schools faced criticism in the 1980s because:
    (a) of the decline in Japanese competitiveness.
    (b) many critics felt that learning had little relevance to business problems.
    (c) people realised that management ability cannot be taught.
    (d) MBAs were unwilling to accept responsibility for implementation on the shop floor.
44. The absence of business schools in Japan
    (a) is due to the prevalent belief that management ability can only be acquired over years of practical experience.
    (b) was due to the high priority placed on learning as opposed to doing in Confucian culture.
    (c) is hard to explain for the proponents of business education.
    (d) contributed a great deal to their success in international trade and business.
45. The Japanese were initially able to do without business schools as a result of:
    (a) their highly developed and intensively competitive education system.
    (b) dispatching hundreds of students to learn the secrets of western technology and modernisation.
    (c) their highly specific in-company training programmes.
    (d) prevailing beliefs regarding educational institutions.
46. The Japanese modified their views on management education because of:
    (a) greater exposure to U.S. MBA programmes.
    (b) the need to develop worldwide contacts and become Americanised.
    (c) the outstanding success of business schools in the U.S. during the 1960's and 1970s.
    (d) a combination of increased competitive pressures and greater multinationalisation of Japanese business.
47. Training programmes in Japanese corporations have
    (a) been based upon Confucian culture.
    (b) sought the socialisation of newcomers.
    (c) been targeted at people who have neither the capacity nor the incentive to quit.
    (d) been teaching people to do menial tasks.
48. The author argues that
    (a) Japanese do not do without business schools as is generally perceived.
    (b) Japanese corporations do not hire MBAs because of traditions of universal and rigorous academic education, life long employment and strong group identification.
    (c) Placing MBAs in operational and menial tasks is a major factor in Japanese business success.
    (d) U.S. corporations should emulate the Japanese and change the way new recruits are inducted.
49. The main difference between U.S. and Japanese corporations is:
    (a) that one employs MBAs, the other does not.
    (b) that U.S. corporations do not employ Japanese people.
    (c) the U.S. corporations pay more to fresh recruits.
    (d) in the process of selecting and orienting new recruits.
50. The author argues that the Japanese system
    (a) is better that the American system
    (b) is highly productive and gives corporate leadership a long term view as a result of its strong traditions.
    (c) is slowly becoming Americanised.
    (d) succeeds without business schools, whereas the U.S. system fails because of it.

V

Passage 1 (Total Words—675)

This industry preys on pestilence for profits. As the primary sector thrives under the benevolent gaze of the rain gods, according to the CMIE forecast for Business Today, the production of food grains will touch 187 million tons in 1994–95—up from 182 million tons in 1993–94—pesticides are likely to be a key input in the country's race for a quantum jump in agricultural productivity.

That's because a not-insignificant 30 per cent of the production of food grains in the country is destroyed by insects, pests, plant pathogens, rodents, and birds every year. And even though the per capita consumption of pesticides is currently low—which is also a pointer to the industry's potential – this country is still the world's third largest consumer of pesticides.

Classified by target species, pesticides can be divided into four broad categories. Insecticides—like monocrotophos and fenvalerate—are used for killing insects. Herbicides—such as butachlor and anilophos – remove weeds and unwanted plants. Fungicides—like nickel chloride—kill fungi. And fumigants and rodenticides—such as zinc and aluminium phosphide—are used to kill rodents.

At present, insecticides contribute to almost 75 per cent of the turnover of the pesticides industry in value terms and 85 per cent in terms of volume. This is at variance with the trend in the West, where insecticides account for just 32 per cent of pesticides consumption: it is herbicides and fungicides which account for the largest share of consumption in those countries.

In terms of manufacturing technology, the production of pesticides can be classified into two main categories; technical-grade materials and formulations. Technical-grade-material—the basic chemical of high purity—is manufactured in organized units, with the top 10 units accounting for more than 80 percent of production. Most of them have a dominant market share in one or two key products.

However, most pesticides are used as formulations, which are produced by the processing of technical grade materials and are manufactured by both large and small-scale units. In fact, the Insecticides Act of 1968 stipulates that 50 per cent of the production of technical-grade pesticides must be supplied by every manufacturer to non-associated formulators.

While the stipulation aims at ensuring the sale of pesticides at cheaper prices, arbitrary control has led to a conflict of interests. Formulators complain that technical-grade manufacturers operate a cartel. The latter, however, claim that rising input costs—raw materials constitute 60 percent of the selling price of pesticides—are forcing hikes in selling prices.

The pesticides industry has over 80 registered technical-grade manufacturers and about 800 registered formulators. About 160 formulators are associated with technical-grade manufactures and boast of the advantage of being able to obtain raw materials easily, even during the peak consumption season.

As the level of technology required is relatively low, formulators have low fixed investment per unit of output. At 35 percent, the pesticides industry's average capacity utilization is rather low. And this, notwithstanding the 1974 ban imposed by the government on the addition of formulation capacity. However, firms can expand their formulation capacities so long as such expansions are linked to the increased production of technical-grade material.

One of the main reasons for low capacity utilization in this industry is the seasonal nature of the demand for pesticides. The maximum amount of sales is recorded between July and November, which is reflected in the high inventories that are built up in the first quarter of the year. As the active ingredient deteriorates over time, a large number of formulations have a limited shelf-life.

At another level, the industry is characterized by the practice of credit sales to the trade. These credits—which are typically for 60 to 90 days—coupled with the high level of inventories—to cope with demand fluctuations—contribute to the working capital-intensive nature of the industry. That's why most manufacturers have diversified, the most common diversification being pharmaceuticals. An analysis of pesticides sales as a percentage of the total sales of the major players confirms that most pesticides makers are well-diversified.

1. The growth in the production of food grains in 1994–95 over 1993–94 is predicted to be roughly
   (a) 187 million tons.
   (b) 2 percent.
   (c) 3 percent.
   (d) 182 million tons.
2. This country is the third largest consumer of pesticides in spite of

(a) a low per capita consumption of pesticides.
(b) 30 percent of production being destroyed by insects.
(c) our dependence on monsoons.
(d) food grain production being insignificant.

3. The market for technical-grade pesticides in India is dominated by
(a) insecticide manufacturers.
(b) small scale sector.
(c) just ten units.
(d) large scale sector.

4. The relationship between formulators and producers of technical-grade material
(a) is determined by the market.
(b) is rather strong in India.
(c) depends on their end-use.
(d) is partly governed by law.

5. The hike in selling prices
(a) is blamed by formulators on manufacturers.
(b) is the consequence of administered pricing.
(c) is caused by the Act of 1968.
(d) is because there is no cartel of manufacturers.

6. The percentage of formulators who can boast of being able to obtain raw materials easily is
(a) 60
(b) 10
(c) 50
(d) 20

7. High inventories are built up during
(a) October, November, December.
(b) April, May, June.
(c) July, August, September.
(d) None of these.

8. The pesticides industry is characterized by credit sales, the typical credit is
(a) 30 percent of sales.
(b) 2 to 3 months.
(c) to the customers of technical-grade material.
(d) 100 percent of sale.

9. That the pesticides makers are well diversified is indicated by the
(a) dominance of pesticides sales in the total sales.
(b) reduction in pesticides production.
(c) analysis of pesticides sales as a percentage of total sales.
(d) hike in prices of pesticides.

10. Capacity utilization in the pesticides industry is low because of
(a) a ban on expansion.
(b) the seasonal nature of demand.
(c) poor technology.
(d) low per capita consumption.

Passage 2 (Total Words—719)

Why can you not tickle yourself? And what does that have to do with artificial consciousness? Quite a lot, according to Rodney Cotterill, a physicist at the Danish Technical University in Lyngby.

After years of pondering over the workings of the brain, Dr. Cotterill believes he has found the quintessence of consciousness for good measure, he has also applied for a patent covering circuit design for conscious computers, and is discussing with several companies.

The nature of consciousness is shrouded in controversy. Theologians, philosophers, biologists, and computer scientists all have their pet theories. So, to understand how Dr. Cotterill's computers might work, it is necessary to understand his views of consciousness.

His is a classical outlook that can be traced to the philosophers and scientists of the first half of this century, who saw muscular movement as the key to understanding consciousness.

They believed that a person's main source of information about the world comes from movement. Even vision depends on the tiny scanning movements that the eye makes to keep the photosensitive cells of the retina refreshed with new information, So, the theory goes, consciousness must be intimately related to muscles.

Like many of his fellow physicists, Dr. Cotterill is intrigued by how artificial neural networks—the vast arrays of interconnected electronic processes—might mimic the real networks of nerve cells of the brain. But whereas many neural-network enthusiasts hope that consciousness will emerge automatically if their machines become sufficiently complex, Dr. Cotterill thinks that something fundamental is missing in such machines. That something is linked to the particular way in which brains communicate with muscles.

Consider what happens when you reach for a glass. Signals to the brain from the eyes and fingers (called afference in the biological jargon) keep it informed about how the task is progressing. Signals from the brain to the fingers and eyes (called efference) make the necessary adjustments to avoid an accident. But at the same time, another type of signal, called an efference copy, is sent out to other parts of the brain. In simple terms, the efference copy warns the brain's sensory-receptor areas about what the muscles are about to do. Hence, since it is anticipated, self-tickling is not very stimulating.

Certain nerve cells in the brain are activated only if they receive efference copy and related afference within about two-tenths of a second of each other.

This seems to be a way of discriminating between events that the brain has caused in the environment and those over which it has no control, and thus distinguishing self and non-self, a central aspect of consciousness.

It is the efference copy that Dr. Cotterill believes is the crucial ingredient of consciousness. Without it, all there is, is a computer-controlled robot. With it, a computer robot becomes aware that it is in control of itself. Efference copy can be produced by a brain even when no muscles move. According to Dr. Cotterill, thought itself may be efference copy looping round and round in a way that allows the brain to simulate vision, speech and other faculties without actually moving a muscle. Such simulations can lead to new associations of muscular movements—associations which are more commonly known as ideas.

Dr. Cotterill's arguments, which have just been published in the Journal of Consciousness Studies, are unlikely to be endorsed universally. But having identified a loop in the brain which he thinks others have overlooked, he is already toying with a host of possible applications of computers containing an artificial version of it. Video games and stock market analysis are two areas where he sees a big potential.

The key to such applications will be for the computer to probe its environment in an electronic analogy of motion and, at the same time, warn itself of what it is doing by sending itself artificial efference copy – thus keeping constant track of the relationship between its own actions and the reactions of the environment.

Dr. Cotterill does not expect the first computer of this sort to soliloquise spontaneously. But they should show rudimentary signs of consciousness, such as hesitancy and the ability to change their minds.

Such traits are absent for most forms of artificial intelligence. Their presence, hopes Dr. Cotterill, will make computer games more fun, and financial forecasting more lucrative.

11. Dr. Cotterill's conceptualization of consciousness is based on
    (a) Observation and understanding of muscular movements.
    (b) A similar belief shared by theologians and philosophers.
    (c) Theory of neural networks
    (d) Individual sensory skills.
12. The term *efference copy* refers to
    (a) Keeping the brain informed about what is happening to the muscular system.
    (b) An early warning system, which informs the brain about proposed muscle movements.
    (c) The signal from senses to brain which helps to avoid accidents.
    (d) One of the signals exchanged between the brain and senses.
13. According to the passage, Dr. Cotterill differs from the neural network scientists because:
    (a) Other scientists are mathematicians while Dr. Cotterill is a physicist.
    (b) Dr. Cotterill believes that the human mind can be mimicked using neural networks.
    (c) Dr. Cotterill believes that complex machines automatically replicate the brain while many other scientists refuse to do so.
    (d) Dr. Cotterill considers the linkages between brain and the muscles while developing neural networks.
14. Robots with consciousness differ from those without it because
    (a) Such robots are aware of self-control.
    (b) Such robots have better control over movements.
    (c) Such robots can interact with each other.
    (d) Such robots are patented by Dr. Cotterill.
15. Computers with built-in consciousness will be able to
    (a) Spew out Shakespeare.

(b) Maintain a constant watch over the mutual relationship between its actions and the environment's reactions.
(c) Communicate with ease.
(d) Replicate the signals from brain to muscle, thus making them more user friendly.

16. According to the passage, ideas
(a) Are the outcome of thinking process, accompanied by sensory action.
(b) Originate in the absence of muscle movements.
(c) Stem from the simulation of senses, without accompanying muscle movement.
(d) Reflect the result of efference copy produced by muscle movements.

17. It is difficult to tickle oneself because
(a) A signal warns the brain to anticipate tickling.
(b) A signal makes the muscles tighten up.
(c) Such signals are not acknowledged by the brain.
(d) None of these.

Passage 3 (Total Words—1212)

Many surprises lie in store for an academic who strays into the real world. The first such surprise to come my way during a stint as a university administrator, related to the photocopying machines within my jurisdiction. I discovered that paper for the machines plus contractual maintenance cost substantially more than photocopies in the private market. This took no account of the other costs of the photocopiers ink, spare part, the space occupied by the machine, the interest and depreciation on it, the wages of the machine operator, the loss of time when the machine broke down or the operator absented himself.

The university—and indeed the entire educational system—was in a financial crisis. Here was a situation calling for a quick and painless execution of all white elephants, or so I thought. I proposed that we stop using the photocopying machines and get our photocopies made by a private operator who had rented space from our institution. Further, we could reduce our costs well below the market price through an agreement with the private operator which would let him run our surplus machines in exchange for a price concession.

I had expected my proposal to be eagerly embraced by an impoverished university. Instead, it created a furore. In a progressive institution like ours, how could I have the temerity to suggest handing over university assets to the private sector? Perhaps I was in the pay of the private operator. Friends and well-wishers emphasized the necessity of immediately distancing myself from any plan that may conceivably benefit a private entrepreneur—even if it should concurrently benefit the university. That, I gathered, was the essence of financial rectitude.

Abashed, I repented my indiscretion. The photocopying machines were of course no longer used, but neither were they transferred to the enemy in the private sector. We got our photocopying done privately at market prices, not the concessional rates I had proposed. The university lost money, but the family silver was saved from the private enemy. After a decently long period gathering dust and cobwebs, it could be sold as scrap, but that would not be during my tenure.

The story of the photocopying machines is repeated in many different guises throughout our public and semi-public institutions. The public sector is replete with unproductive assets, their sterile purity jealously protected from the seductive influences of private enterprise. There are the pathetic load factors in our power plants. There are fleets of public buses lying in idle disrepair in our state transport depots. There is the fertilizer plant which has never produced even a gram of fertilizer because, after its executive had scoured the wide world in search of the cheapest possible parts, they found that the specifications of these parts did not match each other. There are the 80 gas guzzling staff cars boasted of by a north Indian university which has little else to boast about.

Perhaps the most spectacular instances of unproductive government assets relate to land. Five years ago, the then minister for Surface Transport, Jagdish Tytler, suggested a plan for developing the vast tracts of unused land in the Delhi Transport Corporation's bus depots. He argued, entirely credibly, that by leasing out this land for commercial purposes, the DTC could not only cover its chronic and massive deficit, but achieve a substantial surplus. The proposal was never implemented; the defiltration of the private sector into DTC depots was heroically resisted by various government departments and the corporation continued its relentless plunge deeper into the red. All other examples of public extravagance however, pale into insignificance alongside the astronomical wastefulness perpetrated by the New Delhi Municipal

Committee and the design of Edwin Lutyen's Delhi. Delhi unlike all other major cities of the world has a hollow center—the density of population at the heart of town is negligible. In design, it is no modern metropolis but a medieval imperial capital like the Baghdad of the Abbasid Caliphate. The very center of the city is entirely occupied by the almost empty places of the mighty, while hoi polloi throng the periphery and travel long distances daily to serve their masters.

Within the charmed circle of inner New Delhi, Ministers and Members of parliament, the top military brass and the bureaucratic and the judicial elite of the country luxuriate in sprawling bungalows nestling amidst lush greenery in almost sylvan surroundings. The total land area occupied by these bungalows is one of the best kept official secrets. The ministry of urban development keeps no count of aggregates; but it appears that there are about 600 bungalows with areas varying from one to 10 acres. A not implausible estimate of the total area is about 10 million square yards.

A conservative estimate of the value of land in central New Delhi is Rs. 1,00,000 per square yard. Six hundred families of VIPs are occupying real estate worth about Rs. 1,000 billion; at an interest rate of 12%, this sum would yield an annual income of Rs. 120 billion. This amounts to more than one percent of the gross domestic product.

If the government were to move these six hundreds families to the outskirts of the town and lease this land out, say for multi-storied residential construction—subject, of course, to environmental restrictions that would protect the existing greenery—the primary deficit of India would be wiped out.

What is more, rents would drop all over the city and the housing problem of Delhi would be solved, if not fully, at least in substantial measure. Further, there would be a major inward shift of population reducing transport requirements, and making it more lucrative for public transport to ply through inner Delhi. The removal of the six hundred would, at one stroke, relieve the accommodation and transport problems of Delhi as well as the budget deficit of the country. But who would bell the cat? Would the government do it, considering that the 600 are the government?

Public interest litigation has of late highlighted a relatively minor aspect of the VIP housing issue: the abuse of ministerial discretion in making out of turn allotments. This focuses attention on the question of a fair distribution between the members of the elite of the fruits of power. In the process, unfortunately, a question of infinitely larger import has been conveniently consigned to oblivion. Doesn't the entire scheme of VIP housing in New Delhi imply organized plunder of the citizenry on a scale quite unprecedented and totally incompatible with the principles of a democratic society?

Strangely enough, this matter has entirely eluded the searchlight of public attention. Political parties, the media, public interest litigants, grass root people's movements have all maintained a resounding of reticence on the issue. When the excesses perpetrated in the name of VIP security provoked public protest, the prime minister desired that VIP security should be made unobtrusive. VIP housing, however, is an entirely unobtrusive burden on the public, but a burden of quite mind boggling proportions. Perhaps it is the silent character of this infliction that has made it so easy to impose. Or perhaps centuries of colonial rule have made habitual slaves of us: a mere 50 years of democracy cannot erase our, habit of obsequiousness to the imperial state and its rulers.

18. According to the passage, when a public system suffers from financial crisis, the situation calls for:
    (a) Tightening the belt all around.
    (b) Handing over unproductive assets to private parties.
    (c) Contracting our maintenance of assets to less efficient private parties.
    (d) Painless and quick execution of all white elephants.
19. One proposal made by the author to reduce the cost of photocopying well below the market price, was to:
    (a) Stop using owned photocopying machines and get photocopies done by private operators in the market.
    (b) Stop using owned photocopying machines and get photocopies done by a private operator who had rented space from the institution.
    (c) Have an agreement with the private operator allowing him to use the owned surplus machines in exchange for a price concession.
    (d) Put the photocopy operating employees on a piece rate basis.

20. The author's experience taught him that the essence of financial rectitude involved:
    (a) Dissociating from any plan which benefits a private entrepreneur even if it concurrently benefits a public institution.
    (b) Supporting any plan which benefits a public institution while benefiting a private entrepreneur.
    (c) Dissociating from any plan which benefits a private entrepreneur at the cost of a public institution.
    (d) Supporting any plan which benefits a public institution at the cost of a private entrepreneur.
21. The practice of getting the photocopies done privately at market prices was acceptable because:
    (a) It saved money for the university.
    (b) It lost money for the university.
    (c) It saved the family silver from the private enemy.
    (d) Though it lost money for the university, it saved the family silver from the private enemy.
22. "...their sterile purity jealously protected from the seductive advances of private enterprise"—the author here is referring to:
    (a) The family silver of the public institutions.
    (b) The productive assets of the public institutions
    (c) The rigid financial practices of the public institutions.
    (d) None of the above.
23. The Delhi Transport Corporation's relentless plunge deeper into the red continued because according to the passage:
    (a) Disposing off 80 gas guzzling staff cars was resisted.
    (b) Fleets of buses in idle disrepair were not allowed to be sold as scrap.
    (c) Leasing out unused land for commercial use was strongly resisted.
    (d) Selling off surplus land to private parties was strongly resisted.
24. An estimate of the total land area occupied by the sprawling bungalows in inner New Delhi is:
    (a) 600 acres
    (b) 6000 acres
    (c) 10 million square yards
    (d) 3000 acres
25. The author's proposal to lease out the land occupied by bungalows for multi-storied residential construction would:
    (a) Spoil the ecology of inner New Delhi.
    (b) Wipe out the primary deficit of India.
    (c) Create a surplus of Rs. 120 billion for the Municipal Committee.
    (d) Enhance the greenery of the inner city.
26. The author contends that shifting 600 elite families of the government from the inner city to the periphery would solve the problem(s) of:
    (a) Accommodation and transportation.
    (b) Transportation and the country's budget deficit.
    (c) Accommodation and the country's budget deficit.
    (d) Accommodation, transportation and the country's budget deficit.
27. When the author talks about an unobtrusive public burden of mind- boggling proportions, he is referring to the issue of:
    (a) VIP security
    (b) VIP housing.
    (c) Out of turn allotment of housing to VIPs
    (d) Unproductive public assets.

Passage 4 (Total Words—926)

Every lover of words knows that these little symbolic units of meaning can be as contradictory as subatomic particles sometimes are. This may well be nature's quixotic way of laughing at our desperate need to explain everything. It gives us a full stop, but watches helplessly, as we expand it into three dots and continue to search.

Although the measurement of the velocity of sub-atomic particles precludes the measurement of their position and vice versa, it hasn't stopped nuclear physicists from trying from searching, from attempting to pin down, to explain. And it is important.

In a book on quantum physics called 'In search of Schrodinger's Cat', John Gribbin says something very fascinating. If a mythical god with a magical pair of infinitesimally small pliers started the task of removing one atom from a molecule of hydrogen (if I remember correctly)

every second from the time of the Big Bang... today, it would take another million years for him or her to complete the task. Phew!

But it is still important to try. Why? If everything is so small and the now proved quantum world is essentially indefinable, why do we go on trying to define? Because we must. It is as important to be rigorous and empirical as to accept the indefinable. Lest we forget, it is through absorption in the act of definition that we first encountered the indefinable. And it is still found there more easily than anywhere else.

But for the effort to define, how would we find the indefinable? But for the setting of limits, would the notion of the limitless have ever arisen? Didn't William Blake once remind us that we never know what is enough; unless we have known what is more than enough.

So, when we analyse words, they are paradoxical, as anything self-referential is. Whether it is the language of mathematics or the language of words, self reference engenders paradox. But one wonders why this is a cause of concern for some people, who would prefer no shades of grey.

Paradox is delightful. It is a rich and fertile ground that nourishes and nurtures what we want to communicate, which often has a nasty habit of falling in between any two given words available to describe it. Words are very close to what Planck called "quanta" though they are not literally packets of meaning; they are the paradoxical verbal equivalent, receptacles of meaning. Little drawers if you like, into which we can insert fresh meanings that expand, limit or even contradict the accepted meaning of the word or phrase.

When we say, I'll believe you! For instance, we mean the exact opposite. As, indeed, when we say something is 'bad' in Black American language, because it means, good.

The original meaning of the word is like a reference point on a matrix. Good, if we use its definition as a working hypothesis. But very dangerous, if we take it as a full and final, irrevocable statement of what it sets out to describe.

Why, one may ask, give the word a meaning at all, if accepting it is suspect? And why embark on the act of definition at all if the result of the definition is insignificant?

Like many wonderful and rewarding things in this mysterious world, it is not either/or but and/plus. It is like asking why we learnt to crawl, if all we are going to do is unlearning it to walk? And further, when on occasion, we are required to crawl in later life, are we regressing?

Learning is a process, not a thing. If we must look at it as a thing, we must look at it as lying-sitting-standing-crawling-walking-running.

To define words, and define them exactly, is very important at the outset. When one is learning a language and even through the process of getting familiar with it, definitions and boundaries are crucial, just as following a broad road to a place is critical before we know our way there. Once we do, the rules aren't important; once we have found a dozen shorter or pleasanter ways to the place, the highway may be of little use to us.

Like a protective cage around a little sapling, definitions protect us in our fledgling days, from the predators of license and ambiguity. And they are important. In its place, everything is important.

Once we have a certain command of the language, however, rules are meant to be broken. Particularly, if we are riding the crazy roller coaster of the English language. It is then what we thought was a packet turns out to be a receptacle. In the clearer light of day, when there is less confusion and obscurity, what appeared to be a serpent in the dusty light, is now quite clearly a rope.

In Alice in Wonderland, Humpty-Dumpty says it quite brilliantly:

"I don't know what you mean by 'glory'", Alice said.

Humpty Dumpty smiled contemptuously.

"Of course you don't—till I tell you. I meant there's a nice knock-down argument for you!"

"But 'glory' doesn't mean a nice knock-down argument" Alice objected.

"When I use a word", Humpty Dumpty said, in a rather sorrowful tone, "it means just what I choose it to mean—neither more not less."

"The question is", said Alice, "whether you can make words mean so many different things."

"The question is", said Humpty Dumpty, "Which is to be the master—that's all."

Be that as it may, a word in your ear before the words stop. Can you ever have a nice knock-down argument?

28. According to the passage:
    (a) Anything delightful is paradoxical.
    (b) Anything self-referential is paradoxical.
    (c) Anything in shades of grey is paradoxical.
    (d) Anything in a rich and fertile ground is paradoxical.

29. From the passage, it can be inferred that:
    (a) To understand a system, we should investigate within its boundaries.
    (b) To understand a system, we should investigate beyond its boundaries.
    (c) To understand a system, we should be rigorous and empirical.
    (d) To understand a system, we should investigate both within and beyond its boundaries.
30. According to Humpty Dumpty:
    (a) Alice does not know what 'glory' means.
    (b) He is Alice's master.
    (c) He imparts to a word the meaning he intends.
    (d) His words are ambiguous.
31. According to the passage:
    (a) When some people say 'bad', they mean the opposite.
    (b) God will complete the removal of all atoms from the hydrogen molecule in a million years.
    (c) One can simultaneously measure both the velocity and position of sub-atomic particles.
    (d) Planck called words 'quanta'.

VI

Passage 1 (CAT 2004)

Recently, I spent several hours sitting under a tree in my garden with the social anthropologist William Ury, a Harvard University professor who specializes in the art of negotiation and wrote the best-selling book, *Getting to Yes*. He captivated me with his theory that tribalism protects people from their fear of rapid change. He explained that the pillars of tribalism that humans rely on for security would always counter any significant cultural or social change. In this way, he said, change is never allowed to happen too fast. Technology, for example, is a pillar of society. Ury believes that every time technology moves in a new or radical direction, another pillar such as religion or nationalism will grow stronger—in effect, the traditional and familiar will assume greater importance to compensate for the new and untested. In this manner, human tribes avoid rapid change that leaves people insecure and frightened.

But we have all heard that nothing is as permanent as change. Nothing is guaranteed. Pithy expressions, to be sure, but no more than cliches. As Ury says, people don't live that way from day-to-day. On the contrary, they actively seek certainty and stability. They want to know they will be safe.

Even so, we scare ourselves constantly with the idea of change. An IBM CEO once said: 'We only re-structure for a good reason, and if we haven't re-structured in a while, that's a good reason.' We are scared that competitors, technology and the consumer will put us out of business—so we have to change all the time just to stay alive. But if we asked our fathers and grandfathers, would they have said that they lived in a period of little change? Structure may not have changed much. It may just be the speed with which we do things.

Change is over-rated, anyway. Consider the automobile. It's an especially valuable example, because the auto industry has spent tens of billions of dollars on research and product development in the last 100 years. Henry Ford's first car had a metal chassis with an internal combustion, gasoline-powered engine, four wheels with rubber tyres, a foot operated clutch assembly and brake system, a steering wheel, and four seats, and it could safely do 18 miles per hour. A hundred years and tens of thousands of research hours later, we drive cars with a metal chassis with an internal combustion, gasoline-powered engine, four wheels with rubber tyres, a foot operated clutch assembly and brake system, a steering wheel, four seats—and the average speed in London in 2001 was 17.5 miles per hour!

That's not a hell of a lot of return for the money. Ford evidently doesn't have much to teach us about change. The fact that they're still manufacturing cars is not proof that Ford Motor Co. is a sound organization, just proof that it takes very large companies to make cars in great quantities—making for an almost impregnable entry barrier.

Fifty years after the development of the jet engine, planes are also little changed. They've grown bigger, wider and can carry more people. But those are incremental, largely cosmetic changes.

Taken together, this lack of real change has come to mean that in travel—whether driving or flying—time and technology have not combined to make things much better. The safety and design have of course accompanied the times and the new volume of cars and flights, but nothing of any significance has changed in the basic assumptions of the final product.

At the same time, moving around in cars or aeroplanes becomes less and less efficient all the time. Not only has there been no great change, but also both forms of transport

have deteriorated as more people clamour to use them. The same is true for telephones, which took over hundred years to become mobile, or photographic film, which also required an entire century to change.

The only explanation for this is anthropological. Once established in calcified organizations, humans do two things: sabotage changes that might render people dispensable, and ensure industry-wide emulation. In the 1960s, German auto companies developed plans to scrap the entire combustion engine for an electrical design. (The same existed in the 1970s in Japan, and in the 1980s in France.) So for 40 years we might have been free of the wasteful and ludicrous dependence on fossil fuels. Why didn't it go anywhere? Because auto executives understood pistons and carburettors, and would be loath to cannibalize their expertise, along with most of their factories.

1. According to the passage, which of the following statements is true?
   (a) Executives of automobile companies are inefficient and ludicrous.
   (b) The speed at which an automobile is driven in a city has not changed much in a century.
   (c) Anthropological factors have fostered innovation in automobiles by promoting use of new technologies.
   (d) Further innovation in jet engines has been more than incremental.
2. Which of the following views does the author fully support in the passage?
   (a) Nothing is as permanent as change.
   (b) Change is always rapid.
   (c) More money spent on innovation leads to more rapid change.
   (d) Over decades, structural change has been incremental.
3. Which of the following best describes one of the main ideas discussed in the passage?
   (a) Rapid change is usually welcomed in society.
   (b) Industry is not as innovative as it is made out to be.
   (c) We should have less change than what we have now.
   (d) Competition spurs companies into radical innovation.
4. According to the passage, the reason why we continued to be dependent on fossil fuels is that:
   (a) Auto executives did not wish to change.
   (b) No alternative fuels were discovered.
   (c) Change in technology was not easily possible.
   (d) German, Japanese and French companies could not come up with new technologies.

Passage 2 (CAT 2004)

The painter is now free to paint anything he chooses. There are scarcely any forbidden subjects, and today, everybody is prepared to admit that a painting of some fruit can be as important as a painting of a hero dying. The Impressionists did as much as anybody to win this previously unheard of freedom for the artist. Yet, by the next generation, painters began to abandon the subject altogether, and began to paint abstract pictures. Today, the majority of pictures painted are abstract.

Is there a connection between these two developments? Has art gone abstract because the artist is embarrassed by his freedom? Is it that, because he is free to paint anything, he doesn't know what to paint? Apologists for abstract art often talk of it as the art of maximum freedom. But could this be the freedom of the desert island? It would take too long to answer these questions properly. I believe there is a connection. Many things have encouraged the development of abstract art. Among them has been the artists' wish to avoid the difficulties of finding subjects when all subjects are equally possible.

I raise the matter now because I want to draw attention to the fact that the painter's choice of a subject is a far more complicated question than it would at first seem. A subject does not start with what is put in front of the easel or with something which the painter happens to remember. A subject starts with the painter deciding he would like to paint such-and-such because for some reason or other he finds it meaningful. A subject begins when the artist selects something for *special mention.* (What makes it special or meaningful may seem to the artist to be purely visual—its colours or its form.) When the subject has been selected, the function of the painting itself is to communicate and justify the significance of that selection.

It is often said today that subject matter is unimportant. But this is only a reaction against the excessively literary and moralistic interpretation of subject matter in the

nineteenth century. In truth, the subject is literally the beginning and end of a painting. The painting begins with a selection (I will paint this and not everything else in the world); it is finished when that selection is justified (now you can see all that I saw and felt in this and how it is more than merely itself).

Thus, for a painting to succeed, it is essential that the painter and his public agree about what is significant. The subject may have a personal meaning for the painter or individual spectator; but there must also be the possibility of their agreement on its general meaning. It is at this point that the culture of the society and period in question precedes the artist and his art. Renaissance art would have meant nothing to the Aztecs, and vice versa. If, to some extent, a few intellectuals can appreciate them both today, it is because their culture is an historical one: its inspiration is history and therefore, it can include within itself, in principle if not in every particular, all known developments to date.

When a culture is secure and certain of its values, it presents its artists with subjects. The general agreement about what is significant is so well established that the significance of a particular subject accrues and becomes traditional. This is true, for instance, of reeds and water in China, of the nude body in Renaissance, of the animal in Africa. Furthermore, in such cultures, the artist is unlikely to be a free agent: he will be employed for *the sake of particular subjects,* and the problem, as we have just described it, will not occur to him.

When a culture is in a state of disintegration or transition, the freedom of the artist increases—but the question of a subject matter becomes problematic for him: he, himself, has to choose for society. This was at the basis of all the increasing crises in European art during the nineteenth century. It is too often forgotten how many of the art scandals of that time were provoked by the choice of subject (Gericault, Courbet, Daumier, Degas, Lautrec, Van Gogh, etc.).

By the end of the nineteenth century there were, roughly speaking, two ways in which the painter could meet this challenge of deciding what to paint and so choosing for society. Either he identified himself with the people and so allowed their lives to dictate his subjects to him; or he had to find his subjects within himself as painter. By *people* I mean everybody except the bourgeoisie. Many painters did of course work for the bourgeoisie according to their copy-book of approved subjects, but all of them, filling the Salon and the Royal Academy year after year, are now forgotten, buried under the hypocrisy of those they served so sincerely.

5. When a culture is insecure, the painter chooses his subject on the basis of:
   (a) The prevalent style in the society of his time.
   (b) Its meaningfulness to the painter.
   (c) What is put in front of the easel
   (d) Past experience and memory of the painter.
6. In the sentence, "I believe there is a connection" (second paragraph), what two developments is the author referring to?
   (a) Painters using a dying hero and using a fruit as a subject of painting.
   (b) Growing success of painters and an increase in abstract forms.
   (c) Artists gaining freedom to choose subjects and abandoning subjects altogether.
   (d) Rise of Impressionists and an increase in abstract forms.
7. Which of the following is NOT necessarily among the attributes needed for a painter to succeed:
   (a) The painter and his public agree on what is significant.
   (b) The painting is able to communicate and justify the significance of its subject selection.
   (c) The subject has a personal meaning for the painter.
   (d) The painting of subjects is inspired by historical developments.
8. In the context of the passage, which of the following statements would NOT be true?
   (a) Painters decided subjects based on what they remembered from their own lives.
   (b) Painters of reeds and water in China faced no serious problem of choosing a subject.
   (c) The choice of subject was a source of scandals in nineteenth century European art.
   (d) Agreement on the general meaning of a painting is influenced by culture and historical context.
9. Which of the following views is taken by the author?
   (a) The more insecure a culture, the greater the freedom of the artist.

(b) The more secure a culture, the greater the freedom of the artist.
(c) The more secure a culture, more difficult the choice of subject.
(d) The more insecure a culture, the less significant the choice of the subject.

Passage 3 (CAT 2004)

The viability of the multinational corporate system depends upon the degree to which people will tolerate the unevenness it creates. It is well to remember that the 'New Imperialism' which began after 1870 in a spirit of Capitalism Triumphant, soon became seriously troubled and after 1914, was characterized by war, depression, breakdown of the international economic system and war again, rather than Free Trade, Pax Britannica and Material Improvement. A major reason was Britain's inability to cope with the by-products of its own rapid accumulation of capital; i.e., a class-conscious labour force at home; a middle class in the hinterland; and rival centres of capital on the Continent and in America. Britain's policy tended to be atavistic and defensive rather than progressive—more concerned with warding off new threats than creating new areas of expansion. Ironically, Edwardian England revived the paraphernalia of the landed aristocracy it had just destroyed. Instead of embarking on a 'big push' to develop the vast hinterland of the Empire, colonial administrators often adopted policies to arrest the development of either a native capitalist class or a native proletariat which could overthrow them.

As time went on, the centre had to devote an increasing share of government activity to military and other unproductive expenditures; they had to rely on alliances with an inefficient class of landlords, officials and soldiers in the hinterland to maintain stability at the cost of development. A great part of the surplus extracted from the population was thus wasted locally.

The New Mercantilism (as the Multinational Corporate System of special alliances and privileges, aid and tariff concessions is sometimes called) faces similar problems of internal and external division. The centre is troubled: excluded groups revolt and even some of the affluent are dissatisfied with the roles. Nationalistic rivalry between major capitalist countries remains an important divisive factor. Finally, there is the threat presented by the middle classes and the excluded groups of the underdeveloped countries. The national middle classes in the underdeveloped countries came to power when the centre weakened but could not, through their policy of import substitution manufacturing, establish a viable basis for sustained growth. They now face a foreign exchange crisis and an unemployment (or population) crisis—the first indicating their inability to function in the international economy and the second indicating their alienation from the people they are supposed to lead. In the immediate future, these national middle classes will gain a new lease of life as they take advantage of the spaces created by the rivalry between American and non-American oligopolists striving to establish global market positions.

The native capitalists will again become the champions of national independence as they bargain with multinational corporations. But the conflict at this level is more apparent than real, for in the end, the fervent nationalism of the middle class asks only for promotion within the corporate structure and not for a break with that structure. In the last analysis, their power derives from the metropolis and they cannot easily afford to challenge the international system. They do not command the loyalty of their own population and cannot really compete with the large, powerful, aggregate capitals from the centre. They are prisoners of the taste patterns and consumption standards set at the centre.

The main threat comes from the excluded groups. It is not unusual in underdeveloped countries for the top 5 per cent to obtain between 30 and 40 per cent of the total national income, and for the top one-third to obtain anywhere from 60 to 70 per cent. At most, one-third of the population can be said to benefit in some sense from the dualistic growth that characterizes development in the hinterland. The remaining two-thirds, who together get only one-third of the income, are outsiders, not because they do not contribute to the economy, but because they do not share in the benefits. They provide a source of cheap labour which helps keep exports to the developed world at a low price and which has financed the urban-biased growth of recent years. In fact, it is difficult to see how the system in most underdeveloped countries could survive without cheap labour since removing it (e.g. diverting it to public works projects as is done in socialist countries) would raise consumption costs to capitalists and professional elites.

10. The author is in a position to draw parallels between New Imperialism and New Mercantilism because:

(a) both originated in the developed Western capitalist countries.
(b) New Mercantilism was a logical sequel to New Imperialism.
(c) they create the same set of outputs – a labour force, middle classes and rival centres of capital.
(d) both have comparable uneven and divisive effects.

11. According to the author, the British policy during the 'New Imperialism' period tended to be defensive because:
(a) it was unable to deal with the fallouts of a sharp increase in capital.
(b) its cumulative capital had undesirable side-effects.
(c) its policies favoured developing the vast hinterland.
(d) it prevented the growth of a set-up which could have been capitalistic in nature.

12. In the sentence, "They are prisoners of the taste patterns and consumption standards set at the centre." (fourth paragraph), what is the meaning of 'centre'?
(a) National government.
(b) Native capitalists.
(c) New capitalists.
(d) None of the above.

13. Under New Mercantilism, the fervent nationalism of the native middle classes does not create conflict with the multinational corporations because they (the middle classes)
(a) negotiate with the multinational corporations.
(b) are dependent on the international system for their continued prosperity.
(c) are not in a position to challenge the status quo.
(d) do not enjoy popular support.

Passage 4 (CAT 2004)

Throughout human, history the leading causes of death have been infection and trauma. Modern medicine has scored significant victories against both, and the major causes of ill health and death are now the chronic degenerative diseases, such as coronary artery disease, arthritis, osteoporosis, Alzheimer's, macular degeneration, cataract and cancer. These have a long latency period before symptoms appear and a diagnosis is made. It follows that the majority of apparently healthy people are pre-ill.

But are these conditions inevitably degenerative? A truly preventive medicine that focused on the pre-ill, analyzing the metabolic errors which lead to clinical illness, might be able to correct them before the first symptom. Genetic risk factors are known for all the chronic degenerative diseases, and are important to the individuals who possess them. At the population level, however, migration studies confirm that these illnesses are linked for the most part, to lifestyle factors—exercise, smoking and nutrition. Nutrition is the easiest of these to change, and the most versatile tool for affecting the metabolic changes needed to tilt the balance away from disease.

Many national surveys reveal that malnutrition is common in developed countries. This is not the calorie and/or micronutrient deficiency associated with developing nations (Type A malnutrition); but multiple micronutrient depletion, usually combined with calorific balance or excess (Type B malnutrition). The incidence and severity of Type B malnutrition will be shown to be worse if newer micronutrient groups such as the essential fatty acids, xanthophylls and flavonoids are included in the surveys. Commonly ingested levels of these micronutrients seem to be far too low in many developed countries.

There is now considerable evidence that Type B malnutrition is a major cause of chronic degenerative diseases. If this is the case, then it is logical to treat such diseases not with drugs but with multiple micronutrient repletion, or 'pharmaco-nutrition'. This can take the form of pills and capsules-'nutraceuticals', or food formats known as 'functional foods'. This approach has been neglected hitherto because it is relatively unprofitable for drug' companies—the products are hard to patent—and it is a strategy which does not sit easily with modern medical interventionism. Over the last 100 years, the drug industry has invested huge sums in developing a range of subtle and powerful drugs to treat the many diseases we are subject to. Medical training is couched in pharmaceutical terms and this approach has provided us with an exceptional range of therapeutic tools in the treatment of disease and in acute medical emergencies. However, the pharmaceutical model has also created an unhealthy dependency culture, in which relatively few of us accept responsibility for maintaining our own health. Instead, we have handed over this responsibility to health professionals who know very little about health maintenance, or disease prevention.

One problem for supporters of this argument is lack of the right kind of hard evidence. We have a wealth of epidemiological data linking dietary factors to health profiles/disease risks and a great deal of information on mechanism: how food factors interact with our biochemistry. But almost all intervention studies with micronutrients, with the notable exception of the omega 3 fatty acids, have so far produced conflicting or negative results. In other words, our science appears to have no predictive value. Does this invalidate the science? Or are we simply asking the wrong questions?

Based on pharmaceutical thinking, most intervention studies have attempted to measure the impact of a single micronutrient on the incidence of disease. The classical approach says that if you give a compound formula to test, subjects and obtain positive results, you cannot know which ingredient is exerting the benefit, so you must test each ingredient individually. But in the field of nutrition, this does not work. Each intervention on its own will hardly make enough difference to be measured. The best therapeutic response must therefore combine micronutrients to normalize our internal physiology. So, do we need to analyse each individual's nutritional status and then tailor a formula specifically for him or her? While we do not have the resources to analyse millions of individual cases, there is no need to do so. The vast majority of people are consuming suboptimal amounts of most micronutrients, and most of the micronutrients concerned are very safe. Accordingly, a comprehensive and universal program of micronutrient support is probably the most cost-effective and safest way of improving the general health of the nation.

14. Type-B malnutrition is a serious concern in developed countries because
    (a) developing countries mainly suffer from Type-A malnutrition.
    (b) it is a major contributor to illness and death.
    (c) pharmaceutical companies are not producing drugs to treat this condition.
    (d) national surveys on malnutrition do not include newer micronutrient groups.
15. Why are a large number of apparently healthy people deemed pre-ill?
    (a) They may have chronic degenerative diseases.
    (b) They do not know their own genetic risk factors which predispose them to diseases.
    (c) They suffer from Type-B malnutrition.
    (d) There is a lengthy latency period associated with chronically degenerative diseases.
16. The author recommends micronutrient-repletion for large-scale treatment of chronic degenerative diseases because
    (a) it is relatively easy to manage.
    (b) micronutrient deficiency is the cause of these diseases.
    (c) it can overcome genetic risk factors.
    (d) it can compensate for other lifestyle factors.
17. Tailoring micronutrient-based treatment plans to suit individual deficiency profiles is not necessary because
    (a) it very likely to give inconsistent or negative results.
    (b) it is a classic pharmaceutical approach not suited to micronutrients.
    (c) most people are consuming suboptimal amounts of safe-to-consume micronutrients.
    (d) it is not cost effective to do so.

Passage 5 (CAT 2004)

Fifty feet away, three male lions lay by the road. They didn't appear to have a hair on their heads. Noting the color of their noses (leonine noses darken as they age, from pink to black), Craig estimated that they were six years old-young adults. "This is wonderful!" he said, after staring at them for several moments. "This is what we came to see. They really are maneless." Craig, a professor at the University of Minnesota, is arguably the leading expert on the majestic Serengeti lion, whose head is mantled, in long, thick hair. He and Peyton West, a doctoral student who has been working with him in Tanzania, had never seen the Tsavo lions that live some 200 miles east of the Serengeti. The scientists had partly suspected that the maneless males were adolescents mistaken for adults by amateur observers. Now they knew better.

The Tsavo research expedition was mostly Peyton's show. She had spent several years in Tanzania, compiling the data she needed to answer a question that ought to have been answered long ago: Why do lions have manes? It's the only cat, wild or domestic, that displays such ornamentation. In Tsavo, she was attacking the riddle from the opposite angle. Why do its lions not have manes? Some

"maneless" lions in Tsavo East do have partial manes, but they rarely attain the regal glory of the Serengeti lions. Does environmental adaptation account for the trait? Are the lions of Tsavo, as some people believe, a distinct subspecies of their Serengeti cousins?

The Serengeti lions have been under continuous observation for more than 35 years, beginning with George Schaller's pioneering work in the 1960s. But the lions in Tsavo, Kenya's oldest and largest protected ecosystem, have hardly been studied. Consequently, legends have grown up around them. Not only do they look different, according to the myths, they *behave* differently, displaying greater cunning and aggressiveness. "Remember too," *Kenya: The Rough Guide* warns, "Tsavo's lions have a reputation of ferocity." Their fearsome image became well-known in 1898, when two males stalled construction of what is now Kenya Railways by allegedly killing and eating 135 Indian and African laborers. A British Army officer in charge of building a railroad bridge over the Tsavo River, Lt. Col. J. H. Patterson, spent nine months pursuing the pair before he brought them to bay and killed them. Stuffed and mounted, they now glare at visitors to the Field Museum in Chicago. Patterson's account of the leonine reign of terror, The *Man-Eaters of Tsavo,* was an international best-seller when published in 1907. Still in print, the book has made Tsavo's lions notorious. That annoys some scientists. "People don't want to give up on mythology," Dennis King told me one day. The zoologist has been working in Tsavo off and on for four years. "I am so sick of this man-eater business. Patterson made a helluva lot of money off that story, but Tsavo's lions are no more likely to turn man-eater than lions from elsewhere."

But tales of their savagery and wiliness don't all come from sensationalist authors looking to make a buck. Tsavo lions are generally larger than lions elsewhere, enabling them to take down the predominant prey animal in Tsavo, the Cape buffalo, one of the strongest, most aggressive animals of Earth. The buffalo don't give up easily: They often kill or severely injure an attacking lion, and a wounded lion might be more likely to turn to cattle and humans for food.

And other prey is less abundant in Tsavo than in other traditional lion haunts. A hungry lion is more likely to attack humans. Safari guides and Kenya Wildlife Service rangers tell of lions attacking Land Rovers, raiding camps, stalking tourists. Tsavo is a tough neighborhood, they say, and it breeds tougher lions.

But are they really tougher? And if so, is there any connection between their manelessness and their ferocity? An intriguing hypothesis was advanced two years ago by Gnoske and Peterhans: Tsavo lions may be similar to the unmaned cave lions of the Pleistocene. The Serengeti variety is among the most evolved of the species—the latest model, so to speak—while certain morphological differences in Tsavo lions (bigger bodies, smaller skulls, and maybe even lack of a mane) suggest that they are closer to the primitive ancestor of all lions. Craig and Peyton had serious doubts about this idea, but admitted that Tsavo lions pose a mystery to science.

18. The book *Man-Eaters of Tsavo* annoys some scientists because
    (a) it revealed that Tsavo lions are ferocious.
    (b) Patterson made a helluva lot of money from the book by sensationalism.
    (c) it perpetuated the bad name Tsavo lions had.
    (d) it narrated how two male Tsavo lions were killed.
19. According to the passage, which of the following has not contributed to the popular image of Tsavo lions as savage creatures?
    (a) Tsavo lions have been observed to bring down one of the strongest and most aggressive animals—the Cape buffaloes.
    (b) In contrast to the situation in traditional lion haunts, scarcity of non-buffalo prey in the Tsavo makes the Tsavo lions more aggressive.
    (c) The Tsavo lion is considered to be less evolved than the Serengeti variety.
    (d) Tsavo lions have been observed to attack vehicles as well as humans.
20. The sentence which concludes the first paragraph, "Now they knew better", implies that:
    (a) The two scientists were struck by wonder on seeing maneless lions for the first time.
    (b) Though Craig was an expert on the Serengeti lion, now he also knew about the Tsavo lions.
    (c) Earlier, Craig and West thought that amateur observers had been mistaken.
    (d) Craig was now able to confirm that darkening of the noses as lions aged applied to Tsavo lions as well.

21. Which of the following, if true, would weaken the hypothesis advanced by Gnoske and Peterhans most?
    (a) Craig and Peyton develop even more serious doubts about the idea that Tsavo lions are primitive.
    (b) The maneless Tsavo East lions are shown to be closer to the cave lions.
    (c) Pleistocene cave lions are shown to be far less violent than believed.
    (d) The morphological variations in body and skull size between the cave and Tsavo lions are found to be insignificant.

VII

Directions for Questions 1 to 25: *Each of the five passages given below is followed by questions. Choose the best answer for each question.*

Passage 1 (CAT 2002)

The production of histories of India has become very frequent in recent years and may well call for some explanation. Why so many and why this one in particular? The reason is a twofold one: changes in the Indian scene requiring a re-interpretation of the facts and changes in attitudes of historians about the essential elements of Indian history. These two considerations are in addition to the normal fact of fresh information, whether in the form of archeological discoveries throwing fresh light on an obscure period or culture, or the revelations caused by the opening of archives or the release of private papers. The changes in the Indian scene are too obvious to need emphasis. Only two generations ago, British rule seemed to most Indian as well as British observers, likely to extend into an indefinite future; now there is a teenage generation which knows nothing of it. Changes in the attitudes of historians have occurred everywhere, changes in attitudes to the content of the subject as well as to particular countries, but in India, there have been some special features. Prior to the British, Indian historiographers were mostly Muslims, who relied, as in the case of Sayyid Ghulam Hussain, on their own recollection of events and on information from friends and men of affairs. Only a few like Abu'l Fazl had access to official papers. These were personal narratives of events, varying in value with the nature of the writer. The early British writers were officials. In the eighteenth century, they were concerned with some aspect of Company policy, or, like Robert Orme in his *Military Transactions,* gave a straight narrative in what was essentially a continuation of the Muslim tradition. In the early nineteenth century, the writers were still, with two notable exceptions, officials, but they were now engaged in chronicling, in varying moods of zest, pride, and awe, the rise of the British power in India to supremacy. The two exceptions were James Mill, with his critical attitude to the Company and John Marchman, the Baptist missionary. But they, like the officials, were anglo-centric in their attitude, so that the history of modem India in their hands came to be the history of the rise of the British in India.

The official school dominated the writing of Indian history until we get the *first* professional historian's approach, Ramsay Muir and P.E. Roberts in England and H. H. Dodwell in India. Then Indian historians trained in the English school joined in, of whom the most distinguished was Sir Jadunath Sarkar and the other notable writers: Surendranath Sen, Dr. Radhakumud Mukerji, and Professor Nilakanta Sastri. They, it may be said, restored India to Indian history, but their bias was mainly political. Finally have come the nationalists who range from those who can find nothing good or true in the British to sophisticated historical philosophers like K.M. Panikker.

Along with types of historians with their varying biases, have gone changes in the attitude to the content of Indian history. Here, Indian historians have been influenced both by their local situation and by changes of thought elsewhere. It is in this field that this work can claim some attention since it seeks to break new ground, or perhaps to deepen a freshly turned furrow in the field of Indian history. The early official historians were content with the glamour and drama of political history from Plassey to the Mutiny, from Dupleix to the Sikhs. But when the *raj* was settled down, glamour departed from politics, and they turned to the less glorious but more solid ground of administration. Not how India was conquered but how it was governed was the theme of this school of historians. It found its archpriest in H.H. Dodwell, its priestess in Dame Lilian Penson, and its chief shrine in the Volume VI of the *Cambridge History of India.* Meanwhile in Britain, other currents were moving, which led historical study into the economic and social fields. R.C. Dutt entered the first of these currents with his *Economic History of India,* to be followed more recently by the whole group of Indian economic historians. W.E. Moreland extended these studies to the Mughal Period. Social history is now being increasingly studied and there

is also of course, a school of nationalist historians; who see modern Indian history in terms of the rise and the fulfillment of the national movement.

All these approaches have value, but all share in the quality of being compartmental. It is not enough to remove political history from its pedestal of being the only kind of history worth having if it is merely to put other types of history in its place. Too exclusive an attention to economic, social, or administrative history can be as sterile and misleading as too much concentration on politics. A whole subject needs a whole treatment for understanding. A historian must dissect his subject into its elements and then fuse them together again into an integrated whole.

The true history of a country must contain all the features just cited, but must present them as parts of a single consistent theme.

1. Which of the following may be the closest in meaning to the statement "restored India to Indian history"?
   (a) Indian historians began writing Indian history.
   (b) Trained historians began writing Indian history.
   (c) Writing India-centric Indian history began.
   (d) Indian history began to be written in India.
2. Which of the following is the closest implication of the statement "to break new ground, or perhaps to deepen a freshly turned furrow"?
   (a) Dig afresh or dig deeper.
   (b) Start a new stream of thought or help establish a recently emerged perspective.
   (c) Begin or conduct further work on existing archeological sites to unearth new evidence.
   (d) Begin writing a history free of any biases.
3. Historians moved from writing political history to writing administrative history because:
   (a) attitudes of the historians changed.
   (b) the *raj* was settled down.
   (c) politics did not retain its past glamour.
   (d) administrative history was based on solid ground.
4. According to the author, which of the following is **not** among the attitudes of Indian historians of Indian origin?
   (a) Writing history as personal narratives.
   (b) Writing history with political bias.
   (c) Writing non-political history due to lack of glamour.
   (d) Writing history by dissecting elements and integrating them again.
5. In the table given below, match the historians to the approaches taken by them:

A. Administrative	E. Robert Orme
B. Political	F. H. H. Dodwell
C. Narrative	G. Radha Kumud Mukherji
D. Economic	H. R. C. Dutt

(a)	(b)	(c)	(d)
A → F	A → G	A → E	A → F
B → G	B → F	B → F	B → H
C → E	C → E	C → G	C → E
D → H	D → H	D → H	D → G

Passage 2 (CAT 2002)

There are a seemingly endless variety of laws, restrictions, customs and traditions that affect the practice of abortion around the world. Globally, abortion is probably the single most controversial issue in the whole area of women's rights and family matters. It is an issue that inflames women's right groups, religious institutions, and the self-proclaimed "guardians" of public morality. The growing worldwide belief is that the right to control one's fertility is a basic human right. This has resulted in a worldwide trend towards liberalization of abortion laws. Forty percent of the world's population live in countries where induced abortion is permitted on request. An additional 25 percent live in countries where it is allowed if the women's life would be endangered if she went to full term with her pregnancy. The estimate is that between 26 and 31 million legal abortions were performed in 1987. However, there were also between 10 and 22 million illegal abortions performed in that year.

Feminists have viewed the patriarchal control of women's bodies as one of the prime issues facing the contemporary women's movement. They observe that the definition and control of women's reproductive freedom have always been the province of men. Patriarchal religion, as manifest in Islamic fundamentalism, traditionalist Hindu practice, orthodox Judaism, and Roman Catholicism, has been an important historical contributory factor for this and continues to be an important presence in contemporary societies. In recent times, governments, usually controlled

by men, have "given" women the right to contraceptive use and abortion access when their countries were perceived to have an overpopulation problem. When these countries are perceived to be underpopulated, that right has been absent. Until the nineteenth century, a woman's rights to an abortion followed English common law; it could only be legally challenged if there was a "quickening", when the first movements of the foetus could be felt. In 1800, drugs to induce abortions were widely advertised in local newspapers. By 1900, abortion was banned in every state except to save the life of the mother. The change was strongly influenced by the medical profession, which focussed its campaign ostensibly on health and safety issues for pregnant women and the sanctity of life. Its position was also a means of control of non licensed medical practitioners such as midwives and women healers who practiced abortion.

The anti-abortion campaign was also influenced by political considerations. The large influx of eastern and southern European immigrants with their large families was seen as a threat to the population balance of the future United States. Middle and upper class Protestants were advocates of abortion as a form of birth control. By supporting abortion prohibitions, the hope was that these Americans would have more children and thus, prevent the tide of immigrant babies from overwhelming the demographic characteristics of Protestant America.

The anti-abortion legislative position remained in effect in the United States through the first sixty-five years of the twentieth century. In the early 1960s, even when it was widely known that the drug thalidomide taken during pregnancy to alleviate anxiety was shown to contribute to the formation of deformed "flipper-like" hands or legs of children, abortion was illegal in the United States. A second health tragedy was the severe outbreak of rubella during the same time period, which also resulted in major birth defects. These tragedies combined with a change of attitude towards a woman's right to privacy lead a number of states to pass abortion-permitting legislation.

On one side of the controversy are those who call themselves "pro-life". They view the foetus as a human life rather than as an unformed complex of cells; therefore, they hold to the belief that abortion is essentially murder of an unborn child. These groups cite both legal and religious reasons for their opposition to abortion. Pro-lifers point to the rise in legalized abortion figures and see this as morally intolerable. On the other side of the issue are those who call themselves "pro-choice". They believe that women, not legislators or judges, should have the right to decide whether and under what circumstances they will bear children. Pro-choicers are of the opinion that laws will not prevent women from having abortions and cite the horror stories of the past when many women died at the hands of "backroom" abortionists and in desperate attempts to self-abort. They also observe that legalized abortion is especially important for rape victims and incest victims who became pregnant. They stress physical and mental health reasons why women should not have unwanted children.

To get a better understanding of the current abortion controversy, let us examine a very important work by Kristin Luker, titled Abortion and The Politics of Motherhood. Luker argues that female pro-choice and pro-life activists hold different world views regarding gender, sex, and the meaning of parenthood. Moral positions on abortions are seen to be tied intimately to views on sexual behaviour, the care of children, family life, technology, and the importance of the individual. Luker identifies "pro-choice" women as educated, affluent, and liberal. Their contrasting counterparts, "pro-life" women, support traditional concepts of women as wives and mothers. It would be instructive to sketch out the differences in the world views of these two sets of women. Luker examines California, with its liberalized abortion law, as a case history. Public documents and newspaper accounts over a twenty-year period were analyzed and over 200 interviews were held with both pro-life and pro-choice activists.

Luker found that pro-life and pro-choice activists have intrinsically different views with respect to gender. Pro-life women have a notion of public and private life. The proper place for men is in the public sphere of work; for women, it is the private sphere of the home. Men benefit through the nurturance of women; women benefit through the protection of men. Children are seen to be the ultimate beneficiaries of this arrangement by having the mother as a full-time loving parent and by having clear role models. Pro-choice advocates reject the view of separate spheres. They object to the notion of the home being the "women's sphere". Women's reproductive and family roles are seen as potential barriers to full equality. Motherhood is seen as a voluntary, not a mandatory or "natural" role.

In summarizing her findings, Luker believes that women become activists in either of the two movements as the end result of lives that center around different

conceptualizations of motherhood. Their beliefs and values are rooted to the concrete circumstances of their lives, their educations, incomes, occupations, and the different marital and family choices that they have made. They represent two different world views of women's roles in contemporary society and as such, the abortion issue represents the battleground for the justification of their respective views.

6. According to your understanding of the author's arguments, which countries are more likely to allow abortion?
   (a) India and China.
   (b) Australia and Mongolia.
   (c) Cannot be inferred from the passage.
   (d) Both (a) and (b).
7. Which amongst these was not a reason for banning of abortions by 1900?
   (a) Medical professionals stressing the health and safety of women.
   (b) Influx of eastern and southern European immigrants.
   (c) Control of unlicensed medical practitioners.
   (d) A tradition of matriarchal control.
8. A pro-life woman would advocate abortion if:
   (a) the mother of an unborn child is suicidal.
   (b) bearing a child conflicts with a woman's career prospects.
   (b) the mother becomes pregnant accidentally.
   (c) none of the above.
9. Pro-choice women object to the notion of the home being the "women's sphere" because they believe:
   (a) that the home is a "joint sphere" shared between men and women.
   (b) that reproduction is a matter of choice for women.
   (c) that men and women are equal.
   (d) both (b) and (c).
10. Two health tragedies affecting U.S. society in the 1960s led to:
   (a) a change in attitude to women's right to privacy.
   (b) retaining the anti-abortion laws with some exceptions.
   (c) scrapping of anti-abortion laws.
   (d) strengthening of the pro-life lobby.
11. Historically, the pro-choice movement has got support from, among others,:
   (a) major patriarchal religions.
   (b) countries with low population density.
   (c) medical profession.
   (d) none of the above.

Passage 3 (CAT 2002)

The conceptions of life and the world which we call 'philosophical' are a product of two factors: one, inherited religious and ethical conceptions; the other, the sort of investigation which may be called 'scientific', using this word in its broadest sense. Individual philosophers have differed widely in regard to the proportions in which these two factors entered into their systems, but it is the presence of both, in some degree, that characterizes philosophy.

'Philosophy' is a word which has been used in many ways, some wider, some narrower. I propose to use it in a very wide sense, which I will now try to explain.

Philosophy, as I shall understand the word, is something intermediate between theology and science. Like theology, it consists of speculations on matters as to which definite knowledge has, so far, been unascertainable; but like science, it appeals to human reason rather than to authority, whether that of tradition or that of revelation. All definite knowledge—so I should contend—belongs to science; all dogma as to what surpasses definite knowledge belongs to theology. But between theology and science, there is a 'No Man's Land', exposed to attack from both sides; this 'No Man's Land' is philosophy. Almost all the questions of most interest to speculative minds are such as science cannot answer, and the confident answers of theologians no longer seem so convincing as they did in former centuries. Is the world divided into mind and matter, and if so, what is mind and what is matter? Is mind subject to matter, or is it possessed of independent powers? Has the universe any unity or purpose? Is it evolving towards some goal? Are there really laws of nature, or do we believe in them only because of our innate love of order? Is man what he seems to the astronomer, a tiny lump of carbon and water impotently crawling on a small and unimportant planet? Or is he what he appears to Hamlet? Is he perhaps both at once? Is there a way of living that is noble and another that is base, or are all ways of living merely futile? If there is a way of living that is noble, in what does it consist, and how shall we achieve it? Must the good be eternal in order

to deserve to be valued, or is it worth seeking even if the universe is inexorably moving towards death? Is there such a thing as wisdom, or is what seems such merely the ultimate refinement of folly? To such questions; no answer can be found in the laboratory. Theologies have professed to give answers, all too definite; but their definiteness causes modern minds to view them with suspicion. The studying of these questions, if not the answering of them, is the business of philosophy.

Why, then, you may ask, waste time on such insoluble problems? To this, one may answer as a historian, or an individual facing the terror of cosmic loneliness.

The answer of the historian, in so far as I am capable of giving it, will appear in the course of this work. Ever since men became capable of free speculation, their actions in innumerable important respects, have depended upon their theories as to the world and human life, as to what is good and what is evil. This is as true in the present day as at any former time. To understand an age or a nation, we must understand its philosophy, and to understand its philosophy, we must ourselves be in some degree philosophers. There is here a reciprocal causation: the circumstances of men's lives do much to determine their philosophy, but, conversely, their philosophy does much to determine their circumstances.

There is also, however, a more personal answer. Science tells us what we can know, but what we can know is little, and if we forget how much we cannot know, we may become insensitive to many things of very great importance. Theology, on the other hand, induces a dogmatic belief that we have knowledge, where in fact, we have ignorance, and by doing, so generates a kind of impertinent insolence towards the universe. Uncertainty, in the presence of vivid hopes and fears, is painful, but must be endured if we wish to live without the support of comforting fairy tales. It is not good either to forget the questions that philosophy asks, or to persuade ourselves that we have found indubitable answers to them. To teach how to live without certainty, and yet without being paralyzed by hesitation, is perhaps the chief thing that philosophy, in our age, can still do for those who study it.

12. The purpose of philosophy is to:
    (a) reduce uncertainty and chaos.
    (b) help us to cope with uncertainty and ambiguity.
    (c) help us to find explanations for uncertainty.
    (d) reduce the terror of cosmic loneliness.
13. Based on this passage, what can be concluded about the relation between philosophy and science?
    (a) The two are antagonistic.
    (b) The two are complementary.
    (c) There is no relation between the two.
    (d) Philosophy derives from science.
14. From reading the passage, what can be concluded about the profession of the author? He is most likely to be a:
    (a) historian.
    (b) philosopher.
    (c) scientist.
    (d) theologian.
15. According to the author, which of the following statements about the nature of the universe must be definitely true?
    (a) The universe has unity.
    (b) The universe has a purpose.
    (c) The universe is evolving towards a goal.
    (d) None of the above.

Passage 4 (CAT 2002)

Cells are the ultimate multitaskers: they can switch on genes and carry out their orders, talk to each other, divide in two, and much more, all at the same time. But they couldn't do any of these tricks without a power source to generate movement. The inside of a cell bustles with more traffic than Delhi roads, and, like all vehicles, the cell's moving parts need engines. Physicists and biologists have looked "under the hood" of the cell—and laid out the nuts and bolts of molecular engines.

The ability of such engines to convert chemical energy into motion is the envy of nanotechnology researchers looking for ways to power molecule-sized devices. Medical researchers also want to understand how these engines work. Because these molecules are essential for cell division, scientists hope to shut down the rampant growth of cancer cells by deactivating certain motors. Improving motor-driven transport in nerve cells may also be helpful for treating diseases such as Alzheimer's, Parkinson's or ALS, also known as Lou Gehrig's disease.

We wouldn't make it far in life without motor proteins. Our muscles wouldn't contract. We couldn't grow, because the growth process requires cells to duplicate their

machinery and pull the copies apart. And our genes would be silent without the services of messenger RNA, which carries genetic instructions over to the cell's protein-making factories. The movements that make these cellular activities possible, occur along a complex network of threadlike fibers, or polymers, along which bundles of molecules travel like trams. The engines that power the cell's freight are three families of proteins, called myosin, kinesin and dynein. For fuel, these proteins burn molecules of ATP, which cells make when they break down the carbohydrates and fats from the foods we eat. The energy from burning ATP causes changes in the proteins' shape that allow them to heave themselves along the polymer track. The results are impressive: In one second, these molecules can travel between 50 and 100 times their own diameter. If a car with a 5-foot-wide engine were as efficient, it would travel 170 to 340 kmph.

Ronald Vale, a researcher at the Howard Hughes Medical Institute and the University of California at San Francisco, and Ronald Milligan of the Scripps Research Institute have realized a long-awaited goal by reconstructing the process by which myosin and kinesin move, almost down to the atom. The dynein motor, on the other hand, is still poorly understood. Myosin molecules, best known for their role in muscle contraction, form chains that lie between filaments of another protein called actin. Each myosin molecule has a tiny head that pokes out from the chain like oars from a canoe. Just as rowers propel their boat by stroking their oars through the water, the myosin molecules stick their heads into the actin and hoist themselves forward along the filament. While myosin moves along in short strokes, its cousin kinesin walks steadily along a different type of filament called a microtubule. Instead of using a projecting head as a lever, kinesin walks on two "legs." Based on these differences, researchers used to think that myosin and kinesin were virtually unrelated. But newly discovered similarities in the motors' ATP-processing machinery now suggest that they share a common ancestor—molecule. At this point, scientists can only speculate as to what type of primitive cell-like structure this ancestor occupied as it learned to burn ATP and use the energy to change shape. "We'll never really know, because we can't dig up the remains of ancient proteins, but that was probably a big evolutionary leap," says Vale.

On a slightly larger scale, loner cells like sperm or infectious bacteria are prime movers that resolutely push their way through to other cells. As L. Mahadevan and Paul Matsudaira of the Massachusetts Institute of Technology explain, the engines in this case are springs or ratchets that are clusters of molecules, rather than single proteins like myosin and kinesin. Researchers don't yet fully understand these engines' fueling process or the details of how they move, but the result is a force to be reckoned with. For example, one such engine is a spring like stalk connecting a single-celled organism called a vorticellid to the leaf fragment it calls home. When exposed to calcium, the spring contracts, yanking the vorticellid down at speeds approaching 3 inches (8 centimeters) per second.

Springs like this are coiled bundles of filaments that expand or contract in response to chemical cues. A wave of positively charged calcium ions, for example, neutralizes the negative charges that keep the filaments extended. Some sperm use spring like engines made of actin filaments to shoot out a barb that penetrates the layers that surround an egg. And certain viruses use a similar apparatus to shoot their DNA into the host's cell. Ratchets are also useful for moving whole cells, including some other sperm and pathogens. These engines are filaments that simply grow at one end, attracting chemical building blocks from nearby. Because the other end is anchored in place, the growing end pushes against any barrier that gets in its way.

Both springs and ratchets are made up of small units that each move just slightly, but collectively produce a powerful movement. Ultimately, Mahadevan and Matsudaira hope to better understand just how these particles create an effect that seems to be so much more than the sum of its parts. Might such an understanding provide inspiration for ways to power artificial nano-sized devices in the future? "The short answer is absolutely," says Mahadevan. "Biology has had a lot more time to evolve enormous richness in design for different organisms. Hopefully, studying these structures will not only improve our understanding of the biological world, it will also enable us to copy them, take apart their components and re-create them for other purposes."

16. According to the author, research on the power source of movement in cells can contribute to:
    (a) control over the movement of genes within human systems.
    (b) the understanding of nanotechnology.
    (c) arresting the growth of cancer in a human being.
    (d) the development of cures for a variety of diseases.

17. The author has used several analogies to illustrate his arguments in the article. Which of the following pairs of words are examples of the analogies used?
    I. Cell activity and vehicular traffic.
    II. Polymers and tram tracks.
    III. Genes and canoes.
    IV. Vorticellids and ratchets.
    (a) I and II
    (b) II and III
    (c) I and IV
    (d) I and III
18. Read the five statements below: I, II, III, IV, and V. From the options given, select the one which includes statement that are **not** representative of an argument presented in the passage.
    I. Sperms use spring like engines made of actin filament.
    II. Myosin and kinesin are unrelated.
    III. Nanotechnology researchers look for ways to power molecule-sized devices.
    IV. Motor proteins help muscle contraction.
    V. The dynein motor is still poorly understood.
    (a) I, II and III
    (b) III, IV and V
    (c) I, IV and V
    (d) I, III and IV
19. Read the four statements below: I, II, III, and IV. From the options given, select the one which includes only statement(s) that are representative of arguments presented in the passage.
    I. Protein motors help growth processes.
    II. Improved transport in nerve cells will help arrest tuberculosis and cancer.
    III. Cells, together, generate more power than the sum of power generated by them separately.
    IV. Vorticellid and the leaf fragment are connected by a calcium engine.
    (a) I and II but not III
    (b) I and III but not IV
    (c) I and IV but not II
    (d) III and IV but not II
20. Read the four statements below: I, II, III, and IV. From the options given, select the one which include statement(s) that are representative of arguments presented in the passage.
    I. Myosin, kinesin and actin are three types of protein.
    II. Growth processes involve a routine in a cell that duplicates their machinery and pulls the copies apart.
    III. Myosin molecules can generate vibrations in muscles.
    IV. Ronald and Mahadevan are researchers at Massachusetts Institute of Technology.
    (a) I and II but not III and IV
    (b) II and III but not I
    (c) II and IV but not I and III
    (d) I, II and III but not IV

Passage 5 (CAT 2002)

If translated into English, most of the ways economists talk among themselves would sound plausible enough to poets, journalists, businesspeople, and other thoughtful though *noneconomical* folk. Like serious talk anywhere—among boat designers and baseball fans, say—the talk is hard to follow when one has not made a habit of listening to it for a while. The culture of the conversation makes the words arcane. But the people in the unfamiliar conversation are not Martians. Underneath it all (the economist's favorite phrase), conversational habits are similar. Economics uses mathematical models and statistical tests and market arguments, all of which look alien to the literary eye. But looked at closely, they are not so alien. They may be seen as figures of speech-metaphors, analogies, and appeals to authority.

Figures of speech are not mere frills. They think for us. Someone who thinks of a market as an "invisible hand" and the organization of work as a "production function" and his coefficients as being "significant," as an economist does, is giving the language a lot of responsibility. It seems a good idea to look hard at his language.

If the economic conversation were found to depend a lot on its verbal forms, this would not mean that economics would be not a science, or just a matter of opinion, or some sort of confidence game. Good poets, though not scientists, are serious thinkers about symbols; good historians, though not scientists, are serious thinkers about data. Good scientists also use language. What is more (though it

remains to be shown) they use the cunning of language, without particularly meaning to. The language used is a social object, and using language is a social act. It requires cunning (or, if you prefer, consideration) attention to the other minds present when one speaks.

The paying of attention to one's audience is called "rhetoric," a word that I later exercise hard. One uses rhetoric, of course, to warn of a fire in a theatre or to arouse the xenophobia of the electorate. This sort of yelling is the vulgar meaning of the word, like the president's "heated rhetoric" in a press conference or the "mere rhetoric" to which our enemies stoop. Since the Greek flame was lit, though, the word has been used also in a broader and more amiable sense, to mean the study of all the ways of accomplishing things with language: inciting a mob to lynch the accused, to be sure, but also persuading readers of a novel that its characters breathe, or bringing scholars to accept the better argument and reject the worse.

The question is whether the scholar—who usually fancies himself an announcer of "results" or a stator of "conclusions" free of rhetoric—speaks rhetorically. Does he try to persuade? It would seem so. Language, I just said, is not a solitary accomplishment. The scholar doesn't speak into the void, or to himself. He speaks to a community of voices. He desires to be heeded, praised, published, imitated, honored, en-Nobeled. These are the desires. The devices of language are the means.

Rhetoric is the proportioning of means to desires in speech. Rhetoric is an economics of language, the study of how scarce means are allocated to the insatiable desires of people to be heard. It seems on the face of it a reasonable hypothesis that economists are like other people in being talkers, who desire listeners when they go to the library or the laboratory as much as when they go to the office on the polls. The purpose here is to see if this is true, and to see if it is useful: to study the rhetoric of economic scholarship.

The subject is scholarship. It is not the economy, or the adequacy of economic theory as a description of the economy, or even mainly the economist's role in the economy. The subject is the conversation economists have among themselves, for purposes of persuading each other that the interest elasticity of demand for investment is zero or that the money supply is controlled by the Federal Reserve.

Unfortunately, though, the conclusions are of more than academic interest. The conversations of classicists or of astronomers rarely affect the lives of other people. Those of economists do so on a large scale. A well known joke describes a May Day parade through Red Square with the usual mass of soldiers, guided missiles, rocket launchers. At last come rank upon rank of people in gray business suits. A bystander asks, "Who are those?" "Aha!" comes the reply, "those are economists: you have no idea what damage they can do!" Their conversations do it.

21. According to the passage, which of the following is the best set of reasons for which one needs to "look hard" at an economist's language?
    I. Economists accomplish a great deal through their language.
    II. Economics is an opinion-based subject.
    III. Economics has a great impact on other's lives.
    IV. Economics is damaging.
    (a) I and II
    (b) III and IV
    (c) I and III
    (d) II and IV
22. In the light of the definition of rhetoric given in the passage, which of the following will have the least element of rhetoric?
    (a) An election speech.
    (b) An advertisement jingle.
    (c) Dialogues in a play.
    (d) Commands given by army officers.
23. As used in the passage, which of the following is the closest meaning to the statement "The culture of the conversation makes the words arcane"?
    (a) Economists belong to a different culture.
    (b) Only mathematicians can understand economists.
    (c) Economists tend to use terms unfamiliar to the lay person, but depend on familiar linguistic forms.
    (d) Economists use similes and adjectives in their analysis.
24. As used in the passage, which of the following is the closest alternative to the word 'arcane'?
    (a) Mysterious
    (b) Secret
    (c) Covert
    (d) Perfidious

25. Based on your understanding of the passage, which of the following conclusions would you agree with?
    (a) The geocentric and the heliocentric views of the solar system are equally tenable.
    (b) The heliocentric view is superior because of better rhetoric.
    (c) Both views use rhetoric to persuade.
    (d) Scientists should not use rhetoric.

VIII

Passage 1 [CAT 2003 (cancelled)]

At the heart of the enormous boom in wine consumption that has taken place in the English-speaking world over the last two decades or so, is a fascinating, happy paradox. In the days when wine was exclusively the preserve of a narrow cultural elite, bought either at auctions or from gentleman wine merchants in wing collars and bow-ties, to be stored in rambling cellars and decanted to order by one's butler, the ordinary drinker didn't get a look-in. Wine was considered a highly technical subject, in which anybody without the necessary ability could only fall flat on his or her face in embarrassment. It wasn't just that you needed a refined aesthetic sensibility for the stuff if it wasn't to be hopelessly wasted on you. It required an intimate knowledge of what came from where, and what it was supposed to taste like.

Those were times, however, when wine appreciation essentially meant a familiarity with the great French classics, with perhaps a smattering of other wines—like sherry and port. That was what the wine trade dealt in. These days, wine is bought daily in supermarkets and high-street chains to be consumed that evening, hardly anybody has a cellar to store it in and most don't even possess a decanter. Above all, the wines of literally dozens of countries are available on our market. When a supermarket offers its customers a couple of fruity little numbers from Brazil, we scarcely raise an eyebrow.

It seems, in other words, that the commercial jungle that wine has now become has not in the slightest deterred people from plunging adventurously into the thickets in order to taste and see. Consumers are no longer intimidated by the thought of needing to know their Pouilly-Fume from their Pouilly-Fuisse just at the very moment when there is more to know than ever before.

The reason for this new mood of confidence is not hard to find. It is on every wine label from Australia, New Zealand, South Africa and the United States: the name of the grape from which the wine is made. At one time, that might have sounded like a fairly technical approach in itself. Why should native English-speakers know what Cabernet Sauvignon or Chardonnay were? The answer lies in the popularity that wines made from those grape varieties now enjoy. Consumers effectively recognize them as brand names, and have acquired a basic lexicon of wine that can serve them even when confronted with those Brazilian upstarts.

In the wine heartlands of France, they are scared to death of that trend—not because they think their wine isn't as good as the best from California or South Australia (what French winemaker will ever admit that?) but because they don't traditionally call their wines Cabernet Sauvignon or Chardonnay. They call them Chateau Ducru- Beaucillou or Corton-Charlemagne, and they aren't about to change. Some areas, in the middle of southern France, have now produced a generation of growers using the varietal names on their labels and are tempting consumers back to French wine. It will be an uphill struggle, but there is probably no other way if France is to avoid simply becoming a specialty source of old-fashioned wines for old-fashioned connoisseurs.

Wine consumption was also given a significant boost in the early 1990s by the works of Dr. Serge Renaud, who has spent many years investigating the reasons for the uncannily low incidence of coronary heart disease in the south of France. One of his major findings is that the fat-derived cholesterol that build up the arteries and can eventually lead to the heart trouble, can be dispersed by the tannins in wine. Tannin is derived from the skin of grapes, and is therefore, present in higher level in red wines, because they have to be infused with their skin to attain the red colour. That news caused a huge upsurge in red wine consumption in United States. It has not been accorded the prominence it deserves in the UK, largely because the medical profession still sees all alcohol as a menace to health, and is constantly calling for it to be made prohibitively expensive. Certainly, the manufacturers of anticoagulant drugs might have something to lose if we all got the message that we would do just as well for our hearts by taking half a bottle of red wine every day!

1. The tone that the author uses while asking "What French winemaker will ever admit that?" is best described as:
   (a) caustic
   (b) satirical
   (c) critical
   (d) hypocritical.
2. Which one of the following CANNOT be reasonably attributed to the labeling strategy followed by wine producers in English-speaking countries?
   (a) Consumers buy wines on the basis of their familiarity with a grape variety's name.
   (b) Even ordinary customers now have more access to technical knowledge about wine.
   (c) Consumers are able to appreciate better quality wines.
   (d) Some non-English speaking countries like Brazil indicate grape variety names on their labels.
3. Which one of the following, if true, would provide most support for Dr. Renaud's findings about the "effect of tannins"?
   (a) A survey showed that film celebrities based in France have a low incidence of coronary heart disease.
   (b) Measurements carried out in southern France showed red wine drinkers had significantly higher levels of coronary heart incidence than white wine drinkers did.
   (c) Data showed a positive association between sales of red wine and incidence of coronary heart disease.
   (d) Long-term surveys in southern France showed that the incidence of coronary heart disease was significantly lower in red wine drinkers than in those who did not drink red wine.
4. The development which has created fear among winemakers in the wine heartlands of France is the
   (a) tendency not to name wines after the grape varieties that are used in the wines.
   (b) 'education' that consumers have derived from wine labels from English speaking countries.
   (c) new generation of local winegrowers who use labels that show names of grape varieties.
   (d) ability of consumers to understand a wine's qualities when confronted with "Brazilian upstarts'.
5. What according to the author should the French do to avoid becoming a producer of merely old-fashioned wines?
   (a) Follow the labelling strategy of the English-speaking countries.
   (b) Give their wines English names.
   (c) Introduce fruity wines as Brazil has done.
   (d) Produce the wines that have become popular in the English-speaking world.

Passage 2 [CAT 2003 (cancelled)]

Right through history, imperial powers have clung to their possessions to death. Why, then, did Britain in 1947, give up the jewel in its crown, India? For many reasons. The independence struggle exposed the hollowness of the white man's burden. Provincial self-rule since 1935 paved the way for full self rule. Churchill resisted independence, but the Labour government of Atlee was anti-imperialist by ideology. Finally, the Royal Indian Navy mutiny in 1946 raised fears of a second Sepoy mutiny, and convinced British waverers that it was safer to withdraw gracefully. But politico-military explanations are not enough. The basis of empire was always money.

The end of empire had much to do with the fact that British imperialism had ceased to be profitable. World War II left Britain victorious but deeply indebted, needing Marshall Aid and loans from the World Bank. This constituted a strong financial case for ending the no-longer-profitable empire.

Empire building is expensive. The US is spending one billion dollars a day in operations in Iraq that fall well short of full-scale imperialism. Through the centuries, empire building was costly, yet constantly undertaken because it promised high returns. The investment was in armies and conquest. The returns came through plunder and taxes from the conquered.

No immorality was attached to imperial loot and plunder. The biggest conquerors were typically revered (hence, titles like Alexander the Great, Akbar the Great, and Peter the Great). The bigger and richer the empire, the more the plunderer was admired. This mindset gradually changed with the rise of new ideas about equality and governing for the public good, ideas that culminated in the French and American revolutions. Robert Clive was impeached for making a little money on the side, and so was Warren Hastings. The white man's burden came up as a new moral

rationale for conquest: It was supposedly for the good of the conquered. This led to much muddled hypocrisy. On the one hand, the empire needed to be profitable. On the other hand, the white man's burden made brazen loot impossible.

An additional factor deterring loot was the 1857 Sepoy Mutiny. Though crushed, it reminded the British vividly that they were a tiny ethnic group who could not rule a gigantic subcontinent without the support of important locals. After 1857, the British stopped annexing one princely state after another, and instead treated the princes as allies. Land revenue was fixed in absolute terms, partly to prevent local unrest and partly to promote the notion of the white man's burden. The empire proclaimed itself to be a protector of the Indian peasant against exploitation by Indian elites. This was denounced as hypocrisy by nationalists like Dadabhoy Naoroji in the 19th century, who complained that land taxes led to an enormous drain from India to Britain.

Objective calculations by historians like Adams Maddison suggest a drain of perhaps 1.6 percent of Indian Gross National Product in the 19th century. But land revenue was more or less fixed by the Raj in absolute terms and so its real value diminished rapidly with inflation in the 20th century. By World War II, India had ceased to be a profit centre for the British Empire.

Historically, conquered nations paid taxes to finance fresh wars of the conqueror. India itself was asked to pay a large sum at the end of World War I to help repair Britain's finances. But, as shown by historian Indivar Kamtekar, the independence movement led by Gandhiji changed the political landscape, and made mass taxation of India increasingly difficult. By World War II, this had become politically impossible. Far from taxing India to pay for World War II, Britain actually began paying India for its contribution of men and goods. Troops from white dominions like Australia, Canada and New Zealand were paid for entirely by these countries, but Indian costs were shared by the British government. Britain paid in the form of non-convertible sterling balances, which mounted swiftly. The conqueror was paying the conquered, undercutting the profitability on which all empire is funded. Churchill opposed this, and wanted to tax India rather than owe it money. But he was overruled by India hands who said India would resist payment, and paralyze the war effort. Leo Amery, Secretary of State for India, said that when you are driving in a taxi to the station to catch a life-or-death train, you do not loudly announce that you have doubts whether to pay the fare. Thus, World War II converted India from a debtor to a creditor with o*ver* one billion pounds in sterling balances. Britain, meanwhile, became the biggest debtor in the world. It's not worth ruling over people you are afraid to tax.

6. Which one of the following best expresses the main purpose of the author?
   (a) To present the various reasons that can lead to the collapse of an empire and the granting of independence to the subjects of an empire.
   (b) To point out the critical role played by the 'white man's burden' in making a colonizing power give up its claims to native possessions.
   (c) To highlight the contradictory impulse underpinning empire building which is a costly business but very attractive at the same time.
   (d) To illustrate how erosion of the financial basis of an empire supports the granting of independence to an empire's constituents.
7. Which of the following was not a reason for the emergence of the 'white man's burden' as a new rationale for empire building in India?
   (a) The emergence of the idea of the public good as an element of governance.
   (b) The decreasing returns from imperial loot and increasing costs of conquest.
   (c) The weakening of the immorality attached to an emperor's looting behaviour.
   (d) A growing awareness of the idea of equality among peoples.
8. Which of the following best captures the meaning of the 'white man's burden', as it is used by the author?
   (a) British claim to a civilizing mission directed at ensuring the good of the natives.
   (b) Inspiration for the French and American revolutions.
   (c) Resource drain that had to be borne by the home country's white population.
   (d) Imperative that made open looting of resources impossible.
9. What was the main lesson the British learned from the Sepoy Mutiny of 1857?
   (a) That the local princes were allies, not foes.
   (b) That the land revenue from India would decline dramatically.

(c) That the British were a small ethnic group.
(d) That India would be increasingly difficult to rule.

10. Why didn't Britain tax India to finance its World War II efforts?
(a) Australia Canada and New Zealand had offered to pay for Indian troops.
(b) India had already paid a sufficiently large sum during World War I.
(d) It was afraid that if India refused to pay, Britain's war efforts would be jeopardized.
(d) The British empire was built on the premise that the conqueror pays the conquered.

Passage 3 [CAT 2003 (cancelled)]

The controversy over genetically modified food continues unabated in the West. Genetic modification (GM) is the science by which the genetic material of a plant is altered, perhaps to make it more resistant to pests or killer weeds, or to enhance its nutritional value. Many food biotechnologists claim that GM will be a major contribution of science to mankind in the 21st century. On the other hand, large numbers of opponents, mainly in Europe claim that the benefits of GM are a myth propagated by multinational corporations to increase their profits, that they pose a health hazard, and have therefore, called for governments to ban the sale of genetically-modified food.

The anti-GM campaign has been quite effective in Europe, with several European Union member countries imposing a virtual ban for five years over genetically modified food imports. Since the genetically-modified food industry is particularly strong in the United States of America, the controversy also constitutes another chapter in the US-Europe skirmishes which have become particularly acerbic after the US invasion of Iraq.

To a large extent, the GM controversy has been ignored in the Indian media, although Indian biotechnologists have been quite active in GM research. Several groups of Indian biotechnologists have been working on various issues connected with crops grown in India. One concrete achievement, which has recently figured in the news is that of a team led by the former vice-chancellor of Jawaharlal Nehru University, Asis Datta—it has successfully added an extra gene to potatoes to enhance the protein content of the tuber by at least 30 percent. Not surprisingly, the new potato has been called the protato. The protato is now in its third year of field trials. It is quite likely that the GM controversy will soon hit the headlines in India since a spokesperson of the Indian Central government has recently announced that the government may use the protato in its midday meal programme for schools as early as next year.

Why should 'scientific progress", with huge potential benefits to the poor and malnourished, be so controversial'? The anti-GM lobby contends that pernicious propaganda has vastly exaggerated the benefits of GM and completely evaded the costs which will have to be incurred if the genetically-modified food industry is allowed to grow unchecked. In particular, they allude to different types of costs.

This group contends that the most important potential cost is that the widespread distribution and growth of genetically modified food will enable the corporate world (alias the multinational corporations—MNCs) completely capture the food chain. A "small" group of biotech companies will patent the transferred genes as well as the technology associated with them. They will then buy up the competing seed merchants and seed-breeding centres, thereby controlling the production of food at every possible level. Independent farmers, big and small, will be completely wiped out of the food industry. At best, they will be reduced to the status of being subcontractors.

This line of argument goes on to claim that the control of the food chain will be disastrous for the poor since the MNCs , guided by the profit motive, will only focus on the high-value food items demanded by the affluent in the long run, the production of basic staples which constitute the food basket of the poor will taper.

However, this vastly overestimates the power of the MNCs. Even if the research promoted by them does focus on the high-value food items, much of biotechnology research is also funded by governments in both developing and developed countries. Indeed, the protato is a by-product of this type of research. If the protato passes the field trials, there is no reason to believe that it cannot be marketed in the global potato market. And this type of success story can be repeated with other basic food items.

The second type of cost associated with the genetically-modified food industry is environmental damage. The most common type of "genetic engineering" involves gene modification in plants designed to make them resistant to applications of weed-killers. This then enables farmers to use massive dosages of weed-killers so as to destroy or

wipe out all competing varieties of plants in their fields. However, some weeds through genetically-modified pollen contamination, may acquire resistance to a variety of weed-killers. The only way to destroy these weeds is through the use of ever-stronger herbicides which are poisonous and linger on in the environment.

11. Using the clues in the passage, which of the following countries would *you* expect to be in the forefront of the anti-GM campaign?
    (a) USA and Spain
    (b) India and Iraq
    (c) Germany and France
    (d) Australia and New Zealand.
12. The author doubts the anti-GM lobby's contention that MNC control of the food chain will be disastrous for the poor because
    (a) MNCs will focus on high-value food items.
    (b) MNCs are driven by the motive of profit maximization.
    (c) MNCs are not the only group of actors in genetically-modified food research.
    (d) economic development will help the poor buy MNC-produced food.
13. Which of the following about the Indian media's coverage of scientific research does the passage seem to suggest?
    (a) Indian media generally covers a subject of scientific importance when its mass application is likely.
    (b) Indian media's coverage of scientific research is generally dependent on MNCs' interests.
    (c) Indian media, in partnership with the government, is actively involved in publicizing the results of scientific research.
    (d) Indian media only highlights scientific research which is funded by the government.
14. Genetic modification makes plants more resistant to killer weeds. However, this can lead to environmental damage by
    (a) wiping out competing varieties of plants which now fall prey to killer-weeds.
    (b) forcing application of stronger herbicides to kill weeds which have become resistant to weak herbicides.
    (c) forcing application of stronger herbicides to keep the competing plants weed-free.
    (d) not allowing growth of any weeds, thus reducing soil fertility.
15. According to the passage, biotechnology research:
    (a) Is of utility only for high value food items.
    (b) Is funded only by multinational corporations.
    (c) allows multinational corporations to control the food basket of the poor.
    (d) Addresses the concerns of rich and poor countries.

Passage 4 [CAT 2003 (cancelled)]

Modern science, exclusive of geometry, is a comparatively recent creation and can be said to have originated with Galileo and Newton. Galileo was the first scientist to recognize clearly that the only way to further our understanding of the physical world was to resort to experiment. However obvious Galileo's contention may appear in the light of our present knowledge, it remains a fact that the Greeks, in spite of their proficiency in geometry, never seem to have realized the importance of experiment. To a certain extent, this may be attributed to the crudeness of their instruments of measurement. Still, an excuse of this sort can scarcely be put forward when the elementary nature of Galileo's experiments and observations is recalled. Watching a lamp oscillate in the cathedral of Pisa, dropping bodies from the leaning tower of Pisa, rolling balls down inclined planes, noticing the magnifying effect of water in a spherical glass vase, such was the nature of Galileo's experiments and observations. As can be seen, they might just as well have been performed by the Greeks. At any rate, it was thanks to such experiments that Galileo discovered the fundamental law of dynamics, according to which the acceleration imparted to a body is proportional to the force acting upon it.

The next advance was due to Newton, the greatest scientist of all time if account be taken of his joint contributions to mathematics and physics. As a physicist, he was of course an ardent adherent of the empirical method, but his greatest title to fame lies in another direction. Prior to Newton, mathematics, chiefly in the form of geometry, had been studied as a fine art without any view to its physical applications, other than in very trivial cases. But with Newton, all the resources of mathematics were turned to advan-

tage in the solution of physical problems. Thenceforth, mathematics appeared as an instrument of discovery, the most powerful one known to man, multiplying the power of thought just as in the mechanical domain, the lever multiplied our physical action. It is this application of mathematics to the solution of physical problems, this combination of two separate fields of investigation, which constitutes the essential characteristic of the Newtonian method. Thus, problems of physics were metamorphosed into problems of mathematics.

But in Newton's day, the mathematical instrument was still in a very backward state of development. In this field again, Newton showed the mark of genius by inventing the integral calculus. As a result of this remarkable discovery, problems, which would have baffled Archimedes, were solved with ease. We know that in Newton's hands, this new departure in scientific method led to the discovery of the law of gravitation. But here again the real significance of Newton's achievement lay not so much in the exact quantitative formulation of the law of attraction, as in his having established the presence of law and order at least in one important realm of nature, namely, in the motions of heavenly bodies. Nature thus exhibited rationality and was not mere blind chaos and uncertainty. To be sure, Newton's investigations had been concerned with but a small group of natural phenomena, but it appeared unlikely that this mathematical law and order should turn out to be restricted to certain special phenomena; and the feeling was general that all the physical processes of nature would prove to be unfolding themselves according to rigorous mathematical laws.

When Einstein, in 1905, published his celebrated paper on the electrodynamics of moving bodies, he remarked that the difficulties, which surrounded the equations of electrodynamics, together with the negative experiments of Michelson and others, would be obviated if we extended the validity of the Newtonian principle of relativity to the Galilean motion, which applied solely to mechanical phenomena, so as to include all manner of phenomena: electrodynamics, optical, etc. When extended in this way, the Newtonian principle of relativity became Einstein's special principle of relativity. Its significance lay in its assertion that absolute Galilean motion or absolute velocity must ever escape all experimental detection. Henceforth, absolute velocity should be conceived of as physically meaningless, not only in the particular realm of mechanics, as in Newton's day but in the entire realm of physical phenomena. Einstein's special principle, by adding increased emphasis to this relativity of velocity, making absolute velocity metaphysically meaningless, created a still more profound distinction between velocity and accelerated or rotational motion. This latter type of motion remained absolute and real as before. It is most important to understand this point and to realize that Einstein's special principle is merely an extension of the validity of the classical Newtonian principle to all classes of phenomena.

16. According to the author, why did the Greeks NOT conduct experiments to understand the physical world?
    (a) Apparently they did not think it necessary to experiment.
    (b) They focused exclusively on geometry.
    (c) Their instruments of measurement were very crude.
    (d) The Greeks considered the application of geometry to the physical world more important.
17. Newton may be considered one of the greatest scientists of all time because he
    (a) discovered the law of gravitation.
    (b) married physics with mathematics.
    (c) invented integral calculus.
    (d) started the use of the empirical method in science.
18. The statement "nature thus exhibited rationality and was not mere blind chaos and uncertainty" suggests that
    (a) problems that had baffled scientists like Archimedes were not really problems.
    (b) only a small group of natural phenomena was chaotic.
    (c) physical phenomena conformed to mathematical laws.
    (d) natural phenomena were evolving towards a less chaotic future.
19. The significant implication of Einstein's special principle of relativity is that
    (a) absolute velocity was meaningless in the realm of all physical phenomena.
    (b) Newton's principle of relativity needs to be modified.

(c) there are limits to which experimentation can be used to understand some physical phenomena.
(d) it is meaningless to try to understand the distinction between velocity and accelerated or rotational motion.

20. Which of the following statements about modern science best captures the theme of the passage?
(a) Modern science rests firmly on the platform built by the Greeks.
(b) We need to go back to the method of enquiry used by the Greeks to better understand the laws of dynamics.
(c) Disciplines like Mathematics and Physics function best when integrated into one.
(d) New knowledge about natural phenomena builds on existing knowledge.

Directions for Questions 21 to 25: *The poem given below is followed by five questions. Choose the best answer to each question.*

As you set out for Ithaka
hope the journey is a long one,
full of adventure, full of discovery.
Laistrygonians and Cyclops,
angry Poseidon—don't be afraid of them:
you'll never find things like that on your way.
as long as you keep your thoughts raised high,
as long as a rare excitement
stirs your spirit and your body.
Laistrygonians and Cyclops,
wild Poseidon—you won't encounter them
unless you bring them along inside your soul,
unless your soul sets them up in front of you.
Hope the voyage is a long one,
may there be many a summer morning when
with what pleasure, what joy,
you come into harbours seen for the first time;
may you stop at Phoenician trading stations
mother of pearl and coral, amber and ebony
sensual perfume of every kind
as many sensual perfumes as you can;
and may you visit many Egyptian cities
to gather stores of knowledge from their scholars.

Keep Ithaka always in your mind.
Arriving there is what you are destined for.
But do not hurry the journey at all.
Better if it lasts for years.
so you are old by the time you reach the island,
wealthy with all you have gained on the way,
not expecting Ithaka to make you rich.
Ithaka gave you a marvelous journey,
without her you would not have set out.
She has nothing left to give you now.

And if you find her poor, Ithaka won't have fooled you
Wise as you will have become, so full of experience,
you will have understood by then what these Ithakas mean.

21. Which of the following best reflects the central theme of this poem?
(a) If you don't have high expectations, you will not be disappointed.
(b) Don't rush to your goal; the journey is what enriches you.
(c) The longer the journey, the greater the experiences you gather.
(d) You cannot reach Ithaka without visiting Egyptian ports.

22. The poet recommends a long journey. Which of the following is the most comprehensive reason for it?
(a) You can gain knowledge as well as sensual experience.
(b) You can visit new cities and harbours.
(c) You can experience the full range of sensuality.
(d) You can buy a variety of fine things.

23. In the poem, Ithaka is a symbol of
(a) the divine mother
(b) your inner self
(c) the path to wisdom
(d) life's distant goal

24. What does the poet mean by 'Laistrygonians' and 'Cyclops'?
(a) Creatures which, along with Poseidon, one finds during a journey.
(b) Mythological characters that one should not be afraid of.
(c) Intra-personal obstacles that hinder one's journey.
(d) Problems that one has to face to derive the most from one's journey

25. Which of the following best reflects the tone of the poem?
    (a) Prescribing
    (b) Exhorting
    (c) Pleading
    (d) Consoling

Answer Key

I

Passage 1

1. (a) 2. (c) 3. (a) 4. (d) 5. (b)

Passage 2

6. (a) 7. (a) 8. (d) 9. (b) 10. (b)

Passage 3

11. (a) 12. (c) 13. (d) 14. (b)

Passage 4

15. (c) 16. (a) 17. (d) 18. (c) 19. (d)
20. (c)

Passage 5

21. (c) 22. (c) 23. (c) 24. (a) 25. (d)
26. (c)

Passage 6

27. (b) 28. (b) 29. (a) 30. (b)

II

Passage 1

1. (b) 2. (b) 3. (a) 4. (d) 5. (c)
6. (d)

Passage 2

7. (d) 8. (c) 9. (b) 10. (c) 11. (b)

Passage 3

12. (d) 13. (b) 14. (d) 15. (a) 16. (b)

Passage 4

17. (a) 18. (d) 19. (d) 20. (b) 21. (c)

Passage 5

22. (d) 23. (b) 24. (a) 25. (d) 26. (a)
27. (c)

III

Passage 1

1. (b) 2. (a) 3. (c) 4. (d) 5. (a)
6. (c) 7. (d) 8. (b)

Passage 2

9. (c) 10. (b) 11. (d) 12. (b) 13. (a)
14. (c) 15. (a) 16. (d)

Passage 3

17. (b) 18. (c) 19. (a) 20. (c) 21. (d)
22. (d) 23. (b) 24. (a)

Passage 4

25. (c) 26. (b) 27. (c) 28. (d) 29. (a)
30. (d) 31. (a) 32. (b)

Passage 5

33. (c) 34. (a) 35. (d) 36. (c) 37. (a)
38. (b) 39. (d) 40. (b)

IV

Passage 1

1. (a) 2. (d) 3. (d) 4. (b) 5. (a)
6. (b) 7. (a) 8. (d) 9. (b)

Passage 2

10. (a) 11. (b) 12. (d) 13. (b) 14. (a)
15. (c) 16. (a) 17. (c) 18. (c)

Passage 3

19. (a) 20. (b) 21. (b) 22. (d) 23. (d)
24. (c) 25. (d) 26. (c) 27. (b) 28. (a)

Passage 4

29. (d) 30. (c) 31. (c) 32. (c) 33. (a)
34. (c) 35. (d) 36. (c) 37. (a) 38. (b)

Passage 5

39. (c) 40. (b) 41. (b) 42. (c) 43. (b)
44. (a) 45. (a) 46. (d) 47. (b) 48. (a)
49. (d) 50. (b)

V

Passage 1

1. (c) 2. (a) 3. (c) 4. (d) 5. (a)
6. (d) 7. (b) 8. (b) 9. (c) 10. (b)

Passage 2

11. (a) 12. (b) 13. (d) 14. (a) 15. (b)
16. (c) 17. (a)

Passage 3

18. (b) 19. (c) 20. (a) 21. (c) 22. (d)
23. (c) 24. (c) 25. (a) 26. (a) 27. (b)

Passage 4

28. (b) 29. (c) 30. (c) 31. (a)

VI

Passage 1

1. (b) 2. (d) 3. (b) 4. (a)

Passage 2

5. (b) 6. (c) 7. (d) 8. (a)
9. (a)

Passage 3

10. (d) 11. (a) 12. (d) 13. (b)

Passage 4

14. (b) 15. (d) 16. (b) 17. (c)

Passage 5

18. (c) 19. (c) 20. (c) 21. (c)

VII

Passage 1

1. (c) 2. (b) 3. (c) 4. (d) 5. (a)

Passage 2

6. (a) 7. (d) 8. (d) 9. (d) 10. (b)
11. (d)

Passage 3

12. (b) 13. (b) 14. (d) 15. (d)

Passage 4

16. (d) 17. (a) 18. (a) 19. (b) 20. (a)

Passage 5

21. (c) 22. (d) 23. (c) 24. (a) 25. (c)

VIII

Passage 1

1. (b) 2. (d) 3. (d) 4. (b) 5. (a)

Passage 2

6. (d) 7. (a) 8. (d) 9. (c) 10. (c)

Passage 3

11. (c) 12. (c) 13. (a) 14. (b) 15. (a)

Passage 4

16. (a) 17. (b) 18. (c) 19. (a) 20. (d)

Passage 5

21. (b) 22. (a) 23. (d) 24. (d) 25. (b)