

HARYANA STATE MENTAL ABILITY TEST (MAT)

- Arrange the following words as per order in the dictionary.
1. Dissident, 2. Dissolve, 3. Dissent, 4. Dissolute, 5. Dissolution

1. 3,1,4,2,5	2. 3,1,4,5,2
3. 3,2,4,5,1	4. 3,2,1,4,5
 - In a race Amar was running faster than Bipin. Chetan could not run as fast as Amar but ran faster than Deepak. Bipin too could not run as fast as Chetan but ran faster than Deepak. Who will be the winner in the race?

1. Deepak	2. Chetan
3. Bipin	4. Amar
 - If Friday falls on 15th of September 2000, what will be the day on 15th of September, 2001?

1. Thursday	2. Friday
3. Saturday	4. Sunday
- Direction: (Q.4 to Q.6):** Select the one word-pair / number-pair/letter cluster which is different from the other three alternatives.
- | | |
|------------------|-------------------|
| 1. Light : Heavy | 2. Kind : Cruel |
| 3. Soft : Hard | 4. Vacant : Empty |
 - | | |
|-------------|-------------|
| 1. 18 : 48 | 2. 30 : 80 |
| 3. 40 : 110 | 4. 48 : 134 |
 - | | |
|--------------|--------------|
| 1. D I M P R | 2. H M Q T V |
| 3. Q V Z B C | 4. U Z D G I |
 - At present the father is older than the son by 25 years. After 13 years the father's age becomes double that of son. What is father's age now?

1. 26 years	2. 37 years
3. 38 years	4. 50 years
 - In a row of boys, Vishal is seventh from the left and Kamal is eleventh from the right. When they exchange their places, Vishal is thirteenth from the left. What is the new position of Kamal from the right?

1. 16 th	2. 17 th
3. 18 th	4. 19 th
 - In an examination some questions carry 2 marks each and some others 4 marks each. A student scored 40 marks by attempting 15 questions correct in all. How many questions carrying 2 marks did he attempt correctly?

1. 15	2. 12
3. 8	4. 10

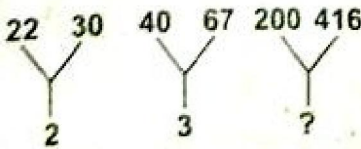
Direction: (Q.10 to Q.12): are based on following information.

P, Q, R, S, T and V are relatives. 'Q' is the son of 'R' but 'R' is not the mother of 'Q'. 'P' and 'R' is a married couple. 'T' is the brother of 'R'. 'S' is the daughter of 'P', and 'V' is the Aunt of 'Q'.

10. Who is the mother of 'Q'?
 1. P
 2. R
 3. S
 4. T
11. How is 'T' related to 'Q'?
 1. Father
 2. Brother
 3. Son
 4. Uncle
12. Who is the wife of 'T'?
 1. R
 2. V
 3. S
 4. P
13. From the given alternative words, select the word which cannot be formed using the letter of the given word:
 COMMISSIONER
 1. COMMON
 2. MISSION
 3. MISSILE
 4. SIREN
14. Select the correct combination of numbers so that letters arranged accordingly will form a meaningful word.
 N S G R E I
 5 4 3 2 1 0
 1. 0 2 5 3 1 4
 2. 3 1 5 4 0 2
 3. 5 0 4 2 3 1 4
 4. 4 0 5 3 1 2
15. In a certain code language, DIAMOND is written as EMPLBHE. How will ROUTINE be written in that code language?
 1. FMJSVNS
 2. FOJUVPS
 3. FMJVSSN
 4. SNVSJMF
16. In certain code language GUIDE is written as $\triangle \bullet \square * \square$ and MARCH is written as @ + \$ \nabla \% . How will DIAGRAM be written in same code language?
 1. * \square + ∇ \$ + @
 2. * \square + \$ + \triangle @
 3. * \square + \triangle \$ + @
 4. * \square + \$ + @ ∇
17. If MY = 16, SUN = 27 then HOTEL will be equal to:
 1. 60
 2. 75
 3. 77
 4. 80
18. If 'water' is called 'air', 'air' is called 'tree', 'tree' is called 'sky', 'sky' is called 'sea' and 'sea' is called 'fire', where do aeroplanes fly?
 1. water
 2. sky
 3. fire
 4. sea
19. How many '8's, are there followed by an even number and preceded by an odd number in the given number sequence?
 5 8 4 7 8 3 2 8 5 4 8 2 9 8 6 8 5 4 8 7 8 4 2 8 6 4 5 8 4 9
 1. 2
 2. 3
 3. 4
 4. 5

20. J, K and L are educated; J, L and M are hard-working; L, M and N are employed; J, K, M and N are polite. Who is educated, hard-working, polite but not employed?
 1. J 2. K
 3. L 4. N
21. If 'S' denote '+', 'D' denotes '-', 'Q' denotes '÷' and 'P' denotes '×', then value of following equation is:
 $35 Q 7 P 5 S 5 D 6 = ?$
 1. 22 2. 24
 3. 26 4. 28

Direction: (Q.22 to Q.23): Select the missing number from the given responses.

22. 
 1. 6 2. 4
 3. 5 4. 7

23.

14	25	42
2	4	6
3	3	?

4	7	9
1. 7	2. 6	
3. 4	4. 3	

Direction: (Q.24 to Q.25): Some equations are solved on the basis of a certain system. On the same basis, find out the correct answer, from amongst the four alternatives, for the unsolved equation.

24. If $9 * 7 = 32$, $11 * 5 = 96$, then $17 * 9 = ?$
 1. 160 2. 175
 3. 208 4. 280
25. $85 \times 14 = 44$, $68 \times 28 = 64$, $79 \times 45 = ?$
 1. 72 2. 83
 3. 96 4. 124

Direction: (Q.26 to Q.27): are based on the following data.

Vaibhav walks 2 km to east, turns right and walks 1 km and then turns left and walks 4 km and again turning to his left travels 9 km.

26. In which direction is Vaibhav now from his starting point?
 1. North 2. North-East
 3. West 4. South-West
27. What is the shortest distance between Vaibhav's starting point and the present position?
 1. 6 km 2. 8 km
 3. 10 km 4. 12 km

Direction: (Q.28 to Q.29): Take the given statements as true even if they seem to be at variance from commonly known facts and decide which of the conclusions logically follows from the statements:

28. Statements:

All flowers are fruits.

Some fruits are vegetables.

No vegetable is tree.

Conclusions:

I. Some fruits are flowers.

II. Some trees are vegetables.

III. Some fruits are trees.

1. Only conclusion I follow

2. Only conclusion II follow

3. Only conclusion I and II follows

4. Only conclusion II and III follows

29. Statement:

Adversity makes a man wise.

Conclusions:

I. The poor are wise.

II. Man learns from bitter experience

1. If only conclusion I follow

2. If only conclusion II follow

3. If both I and II follows

4. If neither I nor II follows

30. "Some of the Football players are Badminton players, some Badminton players are Tennis players no Football player is a 'Tennis player'.

Which of the following venn diagrams correctly represents the above statement?

1.



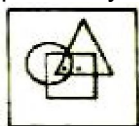
2.



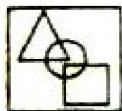
4.



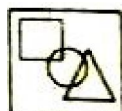
31. There are two dots placed in the question figure. Find out the answer figure which has the possibility of placing the dots satisfying the same conditions as in the question figure?



1.



2.



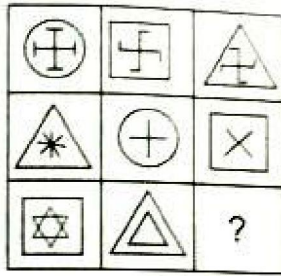
3.



4.

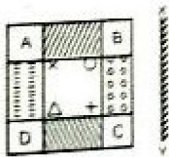


32. Select a suitable figure from the four alternatives that would complete the given matrix.



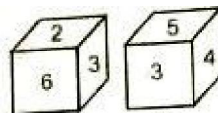
1. 2. 3. 4.

33. If a mirror is placed on the line X Y, then which of the answer figures is the correct image of the given question figure?



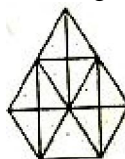
1. 2. 3. 4.

34. Two positions of a dice are shown below. When number 1 is on the top, what number will be at the bottom?



1. 2
3. 5
2. 3
4. 6

35. How many triangles are there in the following figure?



1. 20
3. 32
2. 25
4. 34

Direction: (Q.36 to Q.40): In the following questions, there is a relationship between the letters / numbers / figures on the left of the sign (: :). The same relationship exists to the right of the sign (: :), of which one is missing. Find the missing term from the given alternatives.

36. CEHL:PLIG::LNQU:?

1. PYUR
3. YURP

2. YUPR
4. YPUR

37. FEAL:LEAF::EAKT:?

1. KATE
3. KETA

2. TAKE
4. ETAK

38. 63:9::?:14

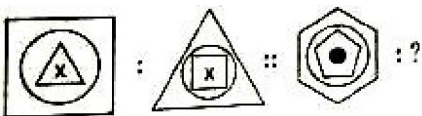
1. 43
3. 86

2. 54
4. 96

39. 5:64::11:?

1. 121
3. 144

2. 124
4. 196

40. 

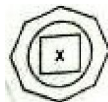
1.



2.



3.



4.



Direction: (Q.41 to Q.45): In the following questions, some letter clusters/numbers/figures are given in a sequence. Find the missing term to replace the question mark from the given alternatives.

41. REOC, PGME, NIKG, ?

1. MJJI
3. LKJH

2. LKII
4. KLIG

42. BYCX, DWEV, FUGT, ?

1. JSHR
3. HSRJ

2. HRJS
4. HSIR

43. 6, 11, 26, 71, 206, ?

1. 244
3. 611

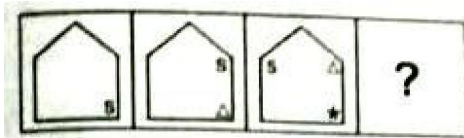
2. 496
4. 632

44. 81, 192, 375, ?, 1029

1. 686
3. 484

2. 648
4. 468

45.



1.



2.



3.



4.



46. Arrange the following words in a logical order.

1. Leaf 2. Fruit 3. Stem 4. Root 5. Flower

1. 4,1,3,5,2

2. 4,3,1,2,5

3. 4,3,1,5,2

4. 4,5,1,3,2

47. Which one number is wrong in the number series?

13, 17, 19, 23, 27, 29

1. 29

2. 27

3. 23

4. 19

Direction: (Q.48 to Q.50): are based on following information.

A group of friends is sitting in a square facing the centre. They are sitting one each at the corners and one each at the midpoints of the sides of the square. Madhvi is sitting diagonally opposite to Uma who is to Girija's right. Rajesh is next to Girija and opposite to Gyan who is on Vinod's left. Satish is not on Madhvi's right but opposite to Priya.

48. Who is opposite to Vinod?

1. Girija

2. Madhvi

3. Priya

4. Satish

49. Who is between Gyan and Madhvi?

1. Rajesh

2. Satish

3. Vinod

4. Priya

50. If Gyan and Rajesh interchange their places, who will be to the left of Gyan?

1. Satish

2. Priya

3. Vinod

4. Girija

HARYANA STATE LANGUAGE TEST

Direction: (Q 51 to 60) Choose the word which best fits the blank from the given four

51. The birth of a girl child in Indian society is an _____ event.
1. Unwelcomeness
2. unwelcome
3. unwelcomely
4. unwelcomingly
52. We should plant a _____ number of trees to reduce the environmental pollution.
1. great
2. big
3. large
4. high
53. The tireless work and selfless help of the people controlled the _____ within a few days.
1. occasion
2. event
3. situation
4. incident
54. Three children have been _____ from the school for persistent bad behavior.
1. removed
2. deleted
3. crased
4. abolished
55. Tanu Bhardwaj, a young poetess, has been receiving a lot of _____ publicity for her impressive poetry.
1. adorable
2. adverse
3. additive
4. average
56. The Kapil Sharma show has been _____ the best comedy show of the year.
1. valued
2. rated
3. evaluated
4. viewed
57. The chief guest was _____ at the school gate by principal and other staff members.
1. respected
2. greeted
3. humoured
4. welcomed
58. All firsts of the baby are _____ in the parents' memories.
1. written
2. carved
3. inscribed
4. etched
59. Market leaders usually want to _____ their market share even further, or at least to protect their current market share.
1. establish
2. increase
3. dominate
4. decrease
60. Children grow up and eventually start leading their individual life 'a life that _____ to them'.
1. refers
2. belongs
3. relates
4. concerns

61. The police are _____ the robbery of a famous painting.
1. finding in 2. finding out
3. looking on 4. looking into

62. You have missed many lessons, so now you will have to _____ the other students.
1. catch up with 2. hurry up
3. learn with 4. mix with

63. My brother's wedding was originally scheduled for May 14, but it has been _____ until November 24.
1. put up 2. put off
3. put away 4. put to

64. (i) Margaret traveled along with some of the missionaries of the Ramakrishana Mission and saw different part of India.

(ii) _____.

(iii) She learnt the ways and manners of Indians.

1. This was something Margaret did 2. This is simply impossible for us to think of

3. She must have been some genius 4. She visited different holy places in India.

65. (i) It has been observed that there is surge in crimes involving computers.

(ii) _____.

(iii) Computers crime are fast and growing because the evolution of technology is fast, but the evolution of law is slow.

1. People commit computer crimes because of easy availability of computers

2. People commit computer crimes because of society' declining ethical standards more than any economic need.

3. People commit computer crimes because controls can't be implemented.

4. People commit cmputer crimes because it is not a national problem.

66. Annoy:
1. award
3. praise
2. please
4. applaud

67. Inclined:
1. fair
3. neutral
2. impartial
4. biased

68. Confess:
1. concede
3. deny
2. contest
4. admit

69. I _____ in a poor family of Haryana.

1. bear 2. am born
3. bore 4. was born

70. Five hundred new houses _____ by the end of next year.
 1. were built 2. were being built
 3. will be built 4. will build

An important task (71) _____ the youth can successfully undertake is to eliminate the curse of dowry. Dowry is responsible for a large number of deaths of innocent married girls and harassment (72) _____ the parents of the marriageable daughters. The birth of (73) _____ daughter in Indian society is an unwelcome event. It generates gloom and despair. (74) _____ the parents simply because of the large dowry which will be required for marrying the girl. The youth (75) _____ boys and girls, can take a pledge (76) _____ force their parents to stop this undesirable practice. This problem directly concerns the youth (77) _____. Therefore they can easily fight it and (78) _____ lives from being lost. The youth in the cities can get in touch with the youth in the rural areas (79) _____ educate them with a view of creating a mass movement for the abolition of dowry. Where legal sanctions against dowry (80) _____ this social movement by the youth will prove effective.

71. 1. this 2. that
 3. who 4. what

72. 1. to 2. by
3. for 4. of

73. 1. any 2. the
 3. a 4. each

74. 1. with 2. to
3. among 4. for

75. 1. every 2. both
3. all 4. no

76. 1. will 2. can
3. might 4. ought

77. 1. themselves 2. himself
 3. herself 4. itself

78. 1. can save 2. saved
 3. save 4. saves

79. 1. yet 2. and
3. although 4. but

80. 1. will nearly fail 2. had nearly failed
 3. nearly failed 4. have nearly failed

Direction: (Q 81 to 85) Read the following passage carefully and answer the questions based on it. Choose the most appropriate option.

The capitalist system of society does not foster healthy relations among human beings. A few people own all the means of production and others = though nominally few have to sell their labour under conditions imposed upon them. The emphasis of capitalism being on the supreme importance of material wealth and intensity of its appeal is to the acquisitive intensity to promotes warship of economic power with little regard to the means employed for the acquisition and the end that it serves. By the exploitation of human being to the limits of endurance its concentration is on the larger profit rather than maximum production. Thus, the division of human family is depend on the basis of economic circumstance. As this is injurious to division of human dignity. And when the harrowed poor turn into the founders of religion for succour, the rather offer a subtle defense for the established order. They promise future happiness for their present suffering and conjure up visions of paradise to redress the balance to soothe the suffering and this revolt of the tortured men. The system imposes injustice, the religion justifies it.

81. Capitalism is injurious to human relations because it divides society into two groups:
- | | |
|------------------------------|-----------------------------|
| 1. working and non-working | 2. exploiters and exploited |
| 3. religious and irreligious | 4. buyers and sellers |
82. Ina capitalistic system of society each man wishes:
- | | |
|--------------------------------|---------------------------------------|
| 1. to require maximum wealth | 2. to produce maximum wealth |
| 3. to have visions of paradise | 4. to soothe the sufferings of others |
83. In a capitalist system:
1. the means justify the ends
 2. the ends justify the means
 3. the means endorsed by religion are strictly followed
 4. means which lead to exploitation are strictly prohibited
84. The passage indicates that the capitalist system is:
- | | |
|---------------|---------------|
| 1. fair | 2. ambitious |
| 3. prosperous | 4. dehumaning |
85. The established order is supported by religion to
1. alleviate the suffering of the poor in the capitalist system
 2. perpetuate the injustice imposed by the capitalist system
 3. balance the suffering of the poor with hopes of future rewards
 4. help the tortured men to seek redress

Direction: (Q 86 to 90) Read the following poem carefully and answers the questions based on it.
Choose the most appropriate option:

**I lay in sorrow, in deep distress,
My grief a proud man heard:
His looks were cold, he gave me gold,
But not a kindly word**

**My sorrow passed – I paid him back
The gold he gave to me.**

**Then stood erect and spoke my thanks
And blessed his charity**

**I lay in want and grief and pain
A poor man passed my way
He bound my head, he gave me bread,
He watched me night and day**

**How shall I pay him back again
For all he did to me?
Oh, gold is great, but greater far
Is heavenly sympathy**

86. How did the proud man help the poet when he was in deep distress?
1. He took him home
2. He gave some money
3. He pitied the poet
4. He watched the poet day and night
87. What was the proud man did not give the poet?
1. gold
2. sympathy
3. money
4. attention
88. How did the poor man take care of the poet?
1. The poor man bound his head which was hurt
2. The poor man gave him food and gold
3. The poor man gave him some money
4. The poor man gave food to the poet and took care of him day and night
89. Which of the following statement is not true?
1. The poor man thanked the heavenly sympathy of the poet.
2. When the poet was in sorrow he was given money
3. The poet repaid his debt to the proud man by blessing his charity
4. The poet says he cannot repay the poor man for his sympathy
90. Which word in the poem “feeling of pity or sorrow for the distress of another”?
1. kindness
2. blessing
3. sympathy
4. charity

Direction: (Q 91 to 95) Read the following poem carefully and answers the questions based on it. Choose the most appropriate option:

It is becoming very dangerous to sit in the sun. If you have a fashionable suntan, it doesn't necessarily mean that you have lots of outdoor activities but it does mean that you are in greater danger of getting skin cancer and cataracts. The ozone layer, which protects us from the sun's dangerous ultraviolet rays, is progressively deteriorating. In February 1992, a scientist report said that people in Canada, Northern Europe and Russia were in serious danger in 1985. The news destruction of the ozone layer in the South Pole alarmed people as the Southern Hemisphere. In Australia, there are now three times more cases of skin cancer than in the past. In New Zealand, teachers tell school children to wear hats and not to sit in the sun. What causes the destruction of the ozone layer? Mostly chlorofluorocarbons (CFCs), aerosol sprays, refrigerators, air conditioner, as well as industrial chemicals, send chlorofluorocarbons into the atmosphere. Governments are now trying very hard to forbid CFCs, but it will be expensive and difficult to do so. After the first ozone alarm in the Southern Hemisphere, ecologists all over the world asked governments to take strict measures immediately. Some governments did, but not soon enough. Others countries believe that they have other problems which are more important. Now stricter measures are going to be taken, but already a lot of damage has been done.

91. _____ dangerous to the skin.
1. The ozone layer is
2. The atmosphere is
3. Ultraviolet rays are
4. The sand storm is
92. CFCs are caused by _____.
1. researchers
2. ecologists
3. aerosol sprays and industries
4. archaeologists
93. Fashionable suntan may _____.
1. make you look dark
2. cause skin cancer and cataract
3. not be acceptable to all
4. not be acceptable to all
94. The author is not very _____.
1. clear
2. hopeless
3. hopeful
4. offensive
95. The word 'deteriorate' in the passage means _____.
1. to become healthy
2. to become worse
3. to become strong
4. to become healthy and strong

Direction: (Q 96 to 97) The following four sentences come from a paragraph. The first and the last sentences are given.

Choose the right order in which the three sentences (PQR) should appear to complete the paragraph.

96. S1. The proverb goes, "If speech silver, silence is golden".
S2. _____
S3. _____
S4. _____
S5. We should talk when it is must.

P – Above all, we should know when not to talk, how much to talk and what to talk.

Q – It is an extremely precious quality to know when to talk, how much to talk and what to talk.

R – We should therefore always remember to use our tongue sparingly.

Choose from the options given below:

- | | |
|--------|--------|
| 1. PRQ | 2. RPQ |
| 3. RQP | 4. PQR |

97. S1. The great advantage of early rising is that one can start one's work long before others.
S2. _____
S3. _____
S4. _____
S5. Also we find time to do some exercise in the fresh morning air.

P – The early risers can do a large amount of hard work before other men get out of bed.

Q – The work done at that time is generally well done.

R – In the early morning, the mind is fresh and no sounds or noises disturb our attention.

Choose from the options given below:

- | | |
|--------|--------|
| 1. PRQ | 2. RPQ |
| 3. RQP | 4. QPR |

Direction: (Q 98 to 100) Select the meaning of the given Idioms.

98. Bring to book
(1) to punish
(2) to write
(3) to remember
(4) to keep safe
99. Cry for the moon.
(1) to weep on failure
(2) to wish for something loving
(3) to weep for a beautiful thing
(4) to wish for something impossible
100. Chalk and cheese
(1) all white
(2) different from each other
(3) similar to each other
(4) write and eat

HARYANA STATE SCHOLASTIC APTITUDE TEST (SAT)

101. A number when divided by 5, 3 and 2 leaves remainders 4, 2 and 1 respectively. Out of all three digit numbers find the total such numbers
1. 28
2. 29
3. 30
4. 31
102. If $\operatorname{cosec} \theta - \cot \theta = p$, then the value of $\frac{p^2 - 1}{p^2 + 1}$ is
1. $\cos \theta$
2. $-\cos \theta$
3. $\sin \theta$
4. $-\sin \theta$
103. If the sum of the first m terms of an A.P. is n and sum of its first n terms is m , then the sum of its first $(m+n)$ terms is
1. $-(m+n)$
2. $m+n$
3. $-m+n$
4. $m-n$
104. If quadratic equation $x^2 + px + k = 0$ has equal roots and -4 is a root of the quadratic equation $x^2 + px - 4 = 0$, then the value of k is
1. $\frac{3}{2}$
2. $\frac{-3}{2}$
3. $\frac{-9}{4}$
4. $-\frac{9}{4}$
105. A peacock sitting on the top of a tree observes a serpent in the ground making an angle of depression 30° . If the peacock with a speed of 300 m per minute catches the serpent in 12 seconds then the height of the tree is:
1. 30 m
2. $30\sqrt{3}$ m
3. $\frac{30}{\sqrt{3}}$ m
4. 15 m
106. a , b and c are the side of a right angled triangle and a circle of radius r touches the sides of the triangle. If c is the hypotenuse of the triangle then the value of r is
1. $\frac{a+b+c}{3}$
2. $\frac{a+b-c}{3}$
3. $\frac{a+b+c}{2}$
4. $\frac{a+b-c}{2}$

107. If one zero of the quadratic polynomial $6x^2 + 15x + 6$ is reciprocal of the other, then the zeros of the polynomial is:
1. 2 and $\frac{1}{2}$
 2. -2 and $-\frac{1}{2}$
 3. 3 and $\frac{1}{3}$
 4. -3 and $-\frac{1}{3}$
108. The mean of certain number of observations is 46. If four observation whose mean is 52 are removed, the mean becomes 44.5. The original number of observation is
1. 35
 2. 20
 3. 15
 4. 12
109. The area of a triangle with vertices $(p, 2 - 2p)$, $(1 - p, 2p)$ and $(-4 - 6, 6 - 2p)$ is 70 sq. units. Then, the number of possible integral values of p is
1. 0
 2. 1
 3. 2
 4. 3
110. In a triangle ABC, points D and E are on sides AB and AC respectively such that BCED is trapezium. If $AE : EC = 3 : 2$, then the ratio of area of $\triangle ADE$ and trapezium BCED is
1. 9 : 16
 2. 9 : 4
 3. 9 : 25
 4. 16 : 25
111. The value of λ satisfying of the relation $y = \lambda x + 5$, where x and y are the solution of pair of equations $x + 210$ and $3x + 4y = 360$ is
1. $\frac{1}{4}$
 2. $-\frac{1}{4}$
 3. $\frac{1}{2}$
 4. $-\frac{1}{2}$
112. Three spheres of radii 6 cm, x cm and y cm are melted to form a single sphere of radius 12 cm. If xy is equal to 80, then the value of $x + y$ is
1. 21
 2. 18
 3. 24
 4. 42
113. If $\cos \theta + \sin \theta = p$ and $\sec \theta + \operatorname{cosec} \theta = V$, then the value of V is:
1. $\frac{p^2}{2p - 1}$
 2. $\frac{2p - 1}{p^2}$
 3. $\frac{2p}{p^2 - 1}$
 4. $\frac{p^2 - 1}{2p}$
114. Angles A, B, C and D of a cyclic quadrilateral ABCD are in the ratio 3 : 3 : 2 : 2 respectively. If $AB = 5$ cm, $BC = 3.5$ cm and $CD = 8$ cm, then the length of AD is
1. 5 cm
 2. 3.5 cm
 3. 8 cm
 4. 4 cm
115. The median of certain observations 17, 18, 23, $27x - 3$, $x + 5$, 45, 49, 74 and 85 arranged in an ascending order is 35. Later on, it was found that one observation 72 was misread as 27 by mistake. The correct median of the data is:
1. 36
 2. 38
 3. 42
 4. 47
-

116. The sides of triangle are 61 cm, 54 cm and 35 cm respectively. The length of its longest altitude is:
1. $10\sqrt{5}$ cm
 2. $16\sqrt{5}$ cm
 3. $24\sqrt{5}$ cm
 4. $28\sqrt{5}$ cm
117. A bag contains two coins. One of them is a regular coin whereas the other has tails on both sides. From this bag, a coin is picked at random and tossed. Then, the probability of getting a head is:
1. 0
 2. $\frac{1}{4}$
 3. $\frac{1}{2}$
 4. $\frac{3}{4}$
118. a and b are roots of a quadratic equation $x^2 + 5x + d = 0$, while a and c are the roots of the quadratic equation $x^2 + 6x + 2d = 0$. If there is only one common root in the two equations, then value of d is
1. -2
 2. -4
 3. 2
 4. 4
119. The mean, mode and median of the observation 7, 7, 5, 7 and x are the same. Then the observation x is:
1. 10
 2. 9
 3. 8
 4. 7
120. ABC is a right angled triangle, right angled at B. If D and E are points on side AB such that $AD = DE = EB$, then the value of $\frac{AC^2 - EC^2}{DC^2 - BC^2}$ is
1. $\frac{3}{1}$
 2. $\frac{5}{2}$
 3. $\frac{9}{4}$
 4. $\frac{2}{1}$
121. Non co – operation movement was withdrawn due to:
1. Jalian Wala Bagh Masscar
 2. Chauri –Chaura incident
 3. Rowlatt Act Introduced
 4. Nehru Report Rejection
122. The term 'Liberalism' is derived from the 'Latin' word 'Liber' meaning:
1. Democratic
 2. Capitalist
 3. Socialist
 4. Free
123. The French Revolution occurred in which following year?
1. 1788
 2. 1789
 3. 1790
 4. 1791
124. Who was the chief architect of the unification of Germany?
1. Chief Minister William – I
 2. King William – II
 3. Chief Minister Ottovon Bismarck
 4. King Kaiser
125. Who among the following was described as the most dangerous enemy of social order by Duke Metternich?
1. Louis Philippe
 2. Karol Kurpinski
 3. Johan Gottfried
 4. Guiseppe Mazzini

126. The elites in Vietnam were powerfully influenced by which following culture?
 1. Indian
 2. American
 3. European
 4. Chinese
127. Who was the founder of Hoa Hao movement?
 1. Huynh Phu So
 2. Phan Boi Chau
 3. Phan Chu Trinch
 4. The official of Imperial court
128. In January 1930 Gandhi ji wrote a letter stating (asking) 'Eleven Demands' to whom?
 1. Lord Irwin
 2. Lord Curzon
 3. Lord Ripon
 4. Lord Lytton
129. Who was the first President of Indian National Congress?
 1. Dada Bhai Naroji
 2. Surendranath Banerjee
 3. W.C. Bonnerjee
 4. Gopal Krishna Gokhale
130. What was the theme of the movie 'Green Berets'?
 1. To Glorify War
 2. To Glorify Peace
 3. To Glorify Socialism
 4. To Glorify Capitalism
131. Who is the writer of 'Vande Mataram' ?
 1. Rabindranath Tagore
 2. Subhash Chandra Bose
 3. Raja Ravi Verma
 4. Bankim Chandri Chatterjee (Chattopadhyay)
132. Trade Unions' first started in which of the following country?
 1. England
 2. America
 3. France
 4. Russia
133. Under which of the following type of resource can tidal energy be put?
 1. Replenishable
 2. Human made
 3. Abiotic
 4. Non – recyclable
134. In which of the following state is laterite soil found?
 1. Jammu and Kashmir
 2. Kerala
 3. Uttarakhand
 4. Jharkhand
135. Which of the following describes a system of agriculture where a single crop is grown on a large area?
 1. Shifting Agriculture
 2. Planation Agriculture
 3. Horticulture
 4. Intensive Agriculture
136. Which two of the following extreme locations are connected by the east west corridor?
 1. Mumbai and Nagpur
 2. Mumbai and Kolkata
 3. Silcher and Porbabdar
 4. Nagpur and Siliguri
137. Which of the following ports is the deepest land – locked and well protected port along the east – coast?
 1. Chennai
 2. Tuticorin
 3. Paradip
 4. Visakhapatnam
138. Which one of the following agencies market steel for the public sector plants?
 1. HAIL
 2. SAIL
 3. TATA STEEL
 4. MNCC
139. Which of the following mineral found in monazite sands?
 1. Mineral oil
 2. Uranium
 3. Thorium
 4. Coal

140. Which one of the following statement is not true?
1. Mica can be clear, black, green, red, yellow or brown
 2. Limestone is found associated with composed of calcium carbonates or calcium and magnesium carbonates.
 3. Aluminium has good conductivity and great malleability
 4. Generally minerals are not found in 'ore'

141. Match the following

Column-I		Column-II	
1	Salt water lake in India	(i)	Barren island
2	Active volcano in India	(ii)	Pitti island
3	Island which is uninhabited	(iii)	Majuli
4	A river island situated in river Brahmaputra	(iv)	Chilka

1. I – iv, 2 – ii, 3 – i, 4 – iii
2. I – iv, 2 – i, 3 – ii, 4 – iii
3. I – iii, 2 – ii, 3 – iv, 4 – i
4. I – ii, 2 – i, 3 – iii, 4 – iv

142. Himalayas have been divided on the basis of regions from west to east. Which is known as:

Column-I		Column-II	
1	The part of Himalayas lying between Indus and Sutlaj	(i)	Kumaon Himalayas
2	The part of Himalayas lying between Sutluj and Kali	(ii)	Punjab Himalayas
3	The part lying between Tista and Dihang	(iii)	Nepal Himalayas
4	The part lying between Kali and Tista	(iv)	Assam Himalayas

1. I – i, 2 – ii, 3 – iii, 4 – vi
2. I – iv, 2 – iii, 3 – ii, 4 – i
3. I – ii, 2 – i, 3 – iv, 4 – iii
4. I – iii, 2 – ii, 3 – i, 4 – iv

143. Match List I (River) and List 2 (Dam) and select the correct answer using the code given

below:

List –I (Rive)		List – II (Dam)	
1	Mahaadi	(i)	Nagarjun
2	Krishna	(ii)	Mettur
3	Sutluj	(iii)	Hirakud
4	Kaveri	(iv)	Bhakhra Nangal

1. I – i, 2 – ii, 3 – iv, 4 – iii
2. I – ii, 2 – iii, 3 – iv, 4 – i
3. I – iv, 2 – ii, 3 – i, 4 – iii
4. I – iii, 2 – i, 3 – iv, 4 – ii

144. Match the following animals with their category of existence and select the correct answer using the code given below

Animal		Category of existence	
1	Black Buck	(i)	Extinct
2	Asiatic Elephant	(ii)	Endangered
3	Andman wild pig	(iii)	Vulnerable
4	Pink Head Duck	(iv)	Endemic

1. I – ii, 2 – iii, 3 – iv, 4 – i
2. I – i, 2 – ii, 3 – iii, 4 – iv
3. I – iv, 2 – iii, 3 – ii, 4 – i
4. I – iii, 2 – ii, 3 – i, 4 – iv

145. Which of the following book is written by Kautilya?

1. Politics
2. Civil Government
3. Arthashastra
4. The Prince

146. Which of the following state does not have coalition government?

1. Bihar
2. Jammu Kashmir
3. Goa
4. Orissa

147. Which of the following nation has parliamentary government but is not republic?
 1. India
 2. U.K.
 3. China
 4. Nepal
148. Personalities of which of the following group do not match in their positions?
 1. Pt. Jawaharlal Nehru, V.P. Singh and Dr. S. Radhakrishnan
 2. Dr. Rajendra Prasad, Dr. V.V. Giri and Dr. Fakhruddin Ali Ahmed
 3. Lala Bahadur Shastri, Narsimha Rao and Manmohan Singh
 4. Lala Lajpat Rai, Bal Gangadhar Tilak and Bipin Chandra Pal
149. Which article of Indian constitution abolishes untouchability ?
 1. Art 19
 2. Art 17
 3. Art 21
 4. Art 23
150. Which of the following statements are correct?
 I. India is secular
 II. India has direct democracy
 III. India has adopted the proportional representation
 IV. India is founder member of UN
 1. i, iv, iii
 2. i, iv
 3. i, ii, iv
 4. i, ii, iii
151. Which article is related with uniform civil code?
 1. Art. 44
 2. Art. 45
 3. Art. 14
 4. Art. 370
152. Choose the odd group from the following:
 1. Lal, Bal, Pal
 2. Weather, Climate, Environment
 3. Heart, Kidney, Dengue
 4. BJP, Congress, RJD
153. I had booked a ticket in Rajdhani Superfast train. The train was delayed for long hours without any reason. In this situation:
 1. I can not approach consumer court as train delays can happen sometime
 2. I can file a complaint in railway office as claim refund of ticket amount
 3. I can approach consumer court for deficiency in service and claim refund of superfast charges as damage.
 4. I can cancel my ticket without paying cancellation charges to railways
154. Assume that national income of a country is Rs.5,00,000 crore in any accounting year and they have received foreign aid of Rs.1,000 crore in the year. In this situation, national income of that country would:
 1. Increase by Rs.1,000 crore
 2. Decrease by Rs.1,000 crore
 3. Remain same
 4. Increase by half of the foreign aid
155. After implementation of GST in the country, a shopkeeper has given a work of their book-keeping/accounts, to my cousin. Such kind of activities can be included in:
 (A) Primary sector
 (B) Secondary sector
 (C) Tertiary sector
 (D) GST sector

156. Match term of Column-I with Column-II.

Column - I		Column - II	
(a)	Land	(i)	Engineer
(b)	Labour	(ii)	Mines
(c)	Capital	(iii)	Machines
(d)	Money	(iv)	Purchasing power

1. (a)-(i), (b)-(ii), (c)-(iii), (d)-(iv)
2. (a)-(ii), (b)-(i), (c)-(iii), (d)-(iv)
3. (a)-(iv), (b)-(ii), (c)-(i), (d)-(iii)
4. (a)-(iii), (b)-(iv), (c)-(i), (d)-(ii)

157. Why despite less calories requirement urban areas have a higher poverty line?

1. because of higher prices of many essential commodities in urban areas
2. urban people eat more in hotels
3. causes of poverty are different in urban areas
4. urban people incur more medical expenses

158. If farmer works at his field of 5 acre and produces total 150 quintals of wheat in a year. His son grown up and joined the farming with his father. Which of the following shows the disguised unemployment, if:

1. production of wheat increase by 50 quintals
2. production of wheat remain constant
3. production of wheat increase by 20 quintals
4. production of wheat increase by 100 quintals

quintals

159. Which one of the following statement is incorrect regarding commercial banking?

1. It deals with money. It accepts deposits and advance loans
2. It deals with credit and has power to create credit.
3. It deals with the general public
4. It is not a commercial institutions whose aim is to earn profit

160. Human Development Index compares countries based on which of the following levels of the people?

- | | |
|-----------------------|----------------------|
| (i) Education level | (ii) Pollution level |
| (iii) Health Status | (iv) Buildings |
| (v) Per capita income | |
1. (i), (ii), (iii)
 2. (i), (iii), (v)
 3. (ii), (iv), (v)
 4. (i), (ii), (v)

161. Which has more number of particles?

1. 16 g of Na atom
2. 8 g of O₂ molecules
3. 0.1 mole of carbon atom
4. 28 g of N₂ molecules

162. Choose the correct option about cheese:

1. Cheese is an example of emulsion in which dispersed phase is a liquid and dispersing medium is solid.
2. Example of gel in which dispersed phase is solid and dispersing medium is liquid.
3. Example of emulsion in which dispersed phase is solid and dispersing medium is liquid.
4. Example of gel in which dispersed phase is liquid and dispersing medium is solid.

163. If the aluminium salt of anion 'X' is Al₂X₃ the formula of magnesium salt of 'X' will be:

1. Mg₂X
2. MgX₂
3. MgX
4. Mg₂X₃

164. On reacting a compound of calcium (x) with water compound (y) is obtained. (y) on boiling with NH₄Cl a gas (z) is obtained. x, y & z respectively are:

1. CaCO₃, CaO, NH₃
2. CaCO₃, CaO, Cl₂
3. CaO, CaCl₂, Cl₂
4. CaO, Ca(OH)₂, NH₃

165. A metal x is placed below Al and above Pb. The extraction of metal is done by reacting carbon with its oxide. Metal oxide is used to join cracks of machine parts and rail lines by reacting it with Al. The metal is:
1. Zn
 2. Cu
 3. Fe
 4. Mg
166. A colourless gas with choking smell is evolved when Cu turning are heated with Conc. H_2SO_4 . The gas is:
1. SO_2
 2. SO_3
 3. H_2S
 4. S
167. Acetic acid is reduced with LiAlH_4 to give:
1. $\text{CH}_3\text{CH}_2\text{OH}$
 2. CH_3CHO
 3. CH_3OH
 4. CH_3CH_3
168. Read the statements about carbon and choose correct option:
- (a) It has small atomic size
 - (b) Its melting & boiling point is low as compared to other members of group
 - (c) It shows electropositive character
 - (d) It shows maximum tendency of catenation
1. a, b are correct
 2. b, d are correct
 3. a, c and d are correct
 4. a & d are correct
169. Which of the following metal is not placed in eighth group of Mendeleev periodic table?
1. Fe
 2. Na
 3. Pt
 4. Ni
170. Baking powder is a mixture of:
1. Sodium carbonate & sodium hydrogen carbonate
 2. Sodium carbonate & acetic acid
 3. Sodium hydrogen carbonate & methanoic acid
 4. Sodium hydrogen carbonate & terteric acid
171. Which of the following elements from acidic oxide?
1. Element with atomic no. 7
 2. Element with atomic no. 3
 3. Element with atomic no. 15
 4. Element with atomic no. 19
172. KMnO_4 is a strong oxidizing agent in acidic medium. To provide acidic medium H_2SO_4 is used instead of HCl because:
1. H_2SO_4 is stronger acid than HCl
 2. H_2SO_4 is a dibasic acid
 3. HCl is oxidized by KMnO_4 to Cl_2
 4. Only H_2SO_4 is completely ionized
173. Consider the two statements below one labeled as Assertion (A) and other as Reason (R). Examine these two statements carefully and decide if Assertion (A) and Reason (R) individually true and if so (R) is a correct explanation of(A) select your answer using the code given below:
- Assertion (A):** CO_2 is a gas but SiO_2 is a solid at room temperature.
- Reason (R):** CO_2 contain C = O bonds but SiO_2 does not contain Si = O bonds.
1. Both A & R are true and R is a correct explanation of A
 2. Both A & R are true but R is not correct explanation of A
 3. A is true R is false
 4. A is false R is true
174. Tripling the speed of a motor car multiplies the distance needed for stopping it by:
1. 3
 2. 6
 3. 9
 4. 12
-

175. Two bodies of masses m_a and m_b are dropped from different heights 'a' and 'b'. The ratio of time taken by them to reach the ground is:

1. $\sqrt{a} : \sqrt{b}$
2. $a : b$
3. $\frac{1}{a} : \frac{1}{b}$
4. $m_a : m_b$

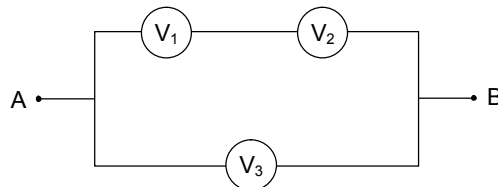
176. A person throws ball with a velocity 'v' from top of a building in vertically upward direction. The ball reaches the ground with a speed of '3v'. The height of the building is:

1. $\frac{4v^2}{g}$
2. $\frac{3v^2}{g}$
3. $\frac{6v^2}{g}$
4. $\frac{9v^2}{g}$

177. A bottle full of water containing an air bubble is rotated in horizontal circle by a string tied to the neck of the bottle. Then air bubble will:

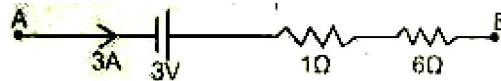
1. be collected at bottom
2. remain unaffected
3. be collected at the wall of bottle
4. be collected at the neck

178. Three voltmeters all having different resistances are joined as shown. When some potential difference is applied across A and B, then readings in voltmeter are V_1 , V_2 and V_3 :



1. $V_1 = V_2$
2. $V_1 < V_2$
3. $V_1 + V_2 = V_3$
4. $V_1 + V_2 > V_3$

179. What is potential difference across AB?



1. 24 V
2. 0 V
3. 6 V
4. 18 V

180. Three equal resistors connected in series across a source of emf dissipate 10 watt. If the same resistors are connected in parallel across the same emf, the power dissipated will be:

1. 10 watt
2. 30 watt
3. $\frac{10}{3}$ watt
4. 90 watt

181. A long wire carries a steady current. It is then bent into a circle of one turn and magnetic field at the centre of coil is B. Then it is bent into n-turns. Magnetic field at centre of coil will be:

1. $2n^2B$
2. $2nB$
3. n^2B
4. nB

182. If 'p' and 'q' are distance of object and image from principal focus of a concave mirror then what is the relation between 'p', 'q' and 'f'?

1. $pq = \sqrt{f}$
2. $pq = f$
3. $pq = f^2$
4. $pq = \frac{1}{f}$

183. When the object is at distances u_1 and u_2 from a lens, a real and virtual images are formed respectively having the same magnification. The focal length of lens is:

1. $u_1 + \frac{u_2}{2}$
2. $\frac{u_1 - u_2}{2}$
3. $\frac{u_1 + u_2}{2}$
4. $u_1 + u_2$

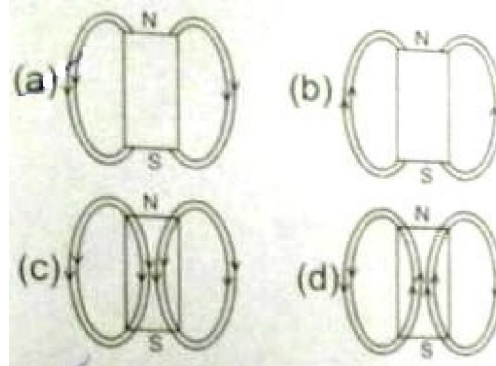
184. A pump motor is used to deliver water at a certain rate from a given pipe. To obtain twice as much water from the same pipe in same time, power of motor has to be increased:

1. 16 times
2. 4 times
3. 8 times
4. 2 times

185. Ultrasonic, infrasonic and audiowaves travel through a medium with speeds v_1 , v_2 and v_3 respectively. Then:

1. v_1 , v_2 and v_3 are nearly equal
2. $v_1 \geq v_3 \geq v_2$
3. $v_1 \leq v_3 \leq v_2$
4. $v_3 \ll v_1$ and $v_1 \approx v_2$

186. The magnetic field lines due to a bar magnet are correctly shown in:



1. a
2. b
3. c
4. d

187. Which one of the following is made of only one type of macromolecule?

1. Virus
2. Plasmid
3. Nucleosome
4. Ribosome

188. Among carbohydrates, lipids, proteins and ATP, the relative energy yield in kcal/gm is best represented by:

1. Lipids > Carbohydrates > ATP
2. ATP > Lipids > Protein
3. Lipids > ATP > Carbohydrates
4. Lipids > Proteins > ATP

189. The sub units of ribosomes in cells of nephron of mouse are:

1. 50S & 30S
2. 40S & 23S
3. 70S & 16S
4. 60S & 40S

190. Involuntary muscles are not found in:

1. Iris
2. Bronchi of lung
3. Tongue
4. Heart

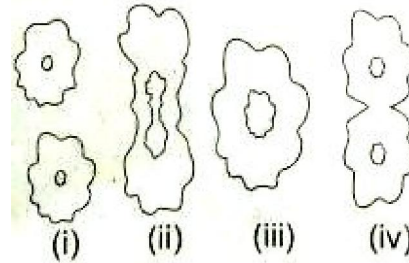
191. Different microorganisms taking part in nitrogen cycle are:

- (i) Rhizobium in roots
- (ii) Ammonifying bacteria
- (iii) Nitrifying bacteria
- (iv) Denitrifying bacteria

Which of them strictly work under anaerobic conditions?

1. only iv
2. i & iv
3. i, ii & iv
4. ii & iv

192. The following pictures were drawn by a student to show different stages of binary fission:



The correct sequence of these figures is:

1. iii, ii, iv, i
 2. iii, iv, ii, i
 3. ii, iii, iv, i
 4. iv, iii, ii, i
193. Which of the following is not strictly considered as a part of neuron?
1. Dendrite
 2. Myelin sheath
 3. Axon
 4. Cell body
194. Which of the following statement about autotrophs is incorrect?
1. They synthesize carbohydrates from carbon dioxide and water.
 2. they store carbohydrate in the form of starch.
 3. They convert water & CO₂ into carbohydrate only in the absence of light.
 4. They constitute first trophic level in the food chain.
195. Correct pathway of blood in circulatory system is:
1. atria → ventricles → artery → veins
 2. ventricles → atria → veins → arteries
 3. ventricles → veins → atria → arteries
 4. atria → arteries → ventricles → veins
196. Which of the following is essential for formation of thyroxine hormone in the thyroid gland?
1. Sodium
 2. Chloride
 3. Potassium
 4. Iodine
197. In a given food chain if frog has 100 J of energy then the energy available with plants and snake respectively will be:
- Plants → Insect → Frog → Snake
1. 1000 J and 10 J
 2. 10000 J and 10 J
 3. 10 J and 1000 J
 4. 1000 J and 100 J
198. Characters that are transmitted from parents to offspring during reproduction show:
1. Only similarities with parents
 2. Only variations with parents
 3. Both similarities and variation with parents
 4. Neither similarities nor variations with parents
199. Rajiv was absent in class due to muscle pain which he claims was due to excess of physical exercise he has done yesterday. The pain is due to:
1. Formation of Pyruvic Acid
 2. Formation of Acetic Acid
 3. Formation of Lactic Acid
 4. Formation of Hydrochloric Acid
200. Which of the following constitutes a good food chain?
1. Grass, Wheat, Mango
 2. Grass, Goat, Lion
 3. Goat, Cow, Elephant
 4. Grass, Fish, Goat

**HARYANA STATE
MENTAL ABILITY TEST (MAT)
ANSWER KEYS**

1.	2	2.	4	3.	3	4.	4
5.	1	6.	3	7.	2	8.	2
9.	4	10.	1	11.	4	12.	2
13.	3	14.	4	15.	1	16.	3
17.	2	18.	4	19.	3	20.	1
21.	2	22.	1	23.	3	24.	3
25.	2	26.	2	27.	3	28.	1
29.	2	30.	4	31.	4	32.	3
33.	4	34.	2	35.	3	36.	3
37.	2	38.	3	39.	4	40.	1
41.	2	42.	4	43.	3	44.	2
45.	1	46.	3	47.	2	48.	1
49.	3	50.	2				

SET – D
HARYANA STATE
LANGUAGE TEST
ANSWER KEYS

51.	3	52.	3	53.	3	54.	1
55.	No correct option	56.	2	57.	4	58.	4
59.	2	60.	2	61.	4	62.	1
63.	2	64.	4	65.	3	66.	2
67.	3	68.	3	69.	4	70.	3
71.	2	72.	4	73.	3	74.	4
75.	2	76.	2	77.	1	78.	3
79.	2	80.	4	81.	2	82.	1
83.	1	84.	4	85.	3	86.	2
87.	2	88.	4	89.	1	90.	3
91.	3	92.	3	93.	2	94.	3
95.	2	96.	3	97.	1	98.	1
99.	4	100.	2				

SET – D

HARYANA STATE

SCHOLASTIC APTITUDE TEST (SAT)

ANSWER KEYS

MATHEMATICS

101.	3	102.	2	103.	1	104.	4
105.	1	106.	4	107.	2	108.	2
109.	2	110.	1	111.	4	112.	2
113.	3	114.	2	115.	3	116.	3
117.	2	118.	4	119.	2	120.	4

SOCIAL SCIENCE

121.	2	122.	4	123.	2	124.	3
125.	4	126.	4	127.	1	128.	1
129.	3	130.	1	131.	4	132.	1
133.	1	134.	2	135.	2	136.	3
137.	4	138.	2	139.	3	140.	4
141.	2	142.	3	143.	4	144.	1
145.	3	146.	4	147.	2	148.	1
149.	2	150.	2	151.	1	152.	3
153.	2	154.	1	155.	3	156.	2
157.	1	158.	2	159.	4	160.	2

CHEMISTRY

161.	1	162.	4	163.	3	164.	4
165.	3	166.	1	167.	1	168.	4
169.	2	170.	4	171.	2	172.	3
173.	1						

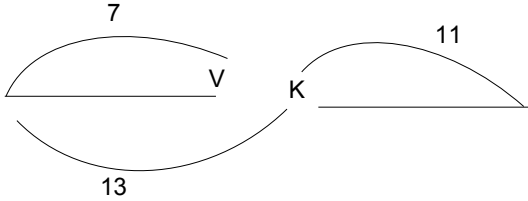
PHYSICS

174.	3	175.	1	176.	1	177.	4
178.	3	179.	4	180.	4	181.	3
182.	3	183.	3	184.	3	185.	1
186.	4						

BIOLOGY

187.	2	188.	2	189.	4	190.	3
191.	1	192.	1	193.	2	194.	3
195.	1	196.	4	197.	2	198.	3
199.	3	200.	2				

HARYANA STATE MENTAL ABILITY TEST SOLUTIONS

1. 2
 1. Dissent
Dissident
Dissolute
Dissolution
Dissolve
 2. 4
 2. Amar → Winner
Chetan
Bipin
Deepak
 3. 3
 3. 15th September 2000 → Friday
15th September 2001 → Saturday [because 2001 is a non – leap year i.e. +1 odd day]
 4. 4
 4. Except option 4 all are antonyms. Option 4 is synonyms.
 5. 1
 5. Except 18:48 all other are (1st number x 3 – 10)
 6. 3
 6. Except QVZBC which follows +5, +4, +2, +1 all follows +5, +4, +3, +2
 7. 2
 7. Father = Son + 25 ... (i)
After 13 years
(Father + 13) = 2 (Son + 13)
⇒ Father – 2 x son = 13 (ii)
Solving equation (i) and (ii) we get father = 37
 8. 2
 8. 

Total = 13 + 11 – 1 = 23
Kamal new position = (23 – 7) + 1 = 17
 9. 4
 9. Let x be ques with 2 marks
 $2x + 4 (15 - x) = 40$
-

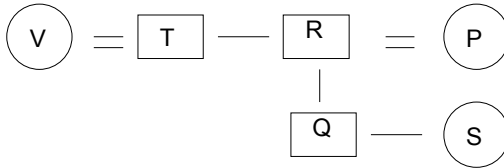
$$2x + 60 - 4x = 40$$

$$x = \frac{20}{2} = 10$$

10.

1

10.

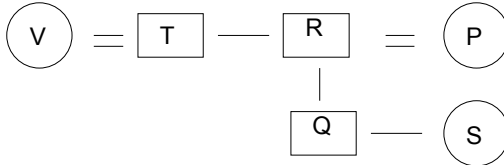


Mother of Q \rightarrow P

11.

4

11.

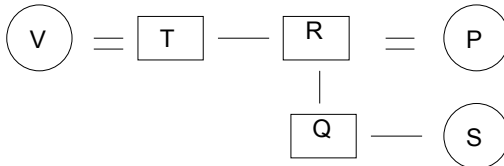


T is the uncle of Q.

12.

2

12.



Wife of T \rightarrow V

13.

3

13.

There is L in MISSILE which is not present in COMMISSIONER.

14.

4

14.

S	I	N	G	E	R
4	0	5	3	1	2

15.

1

15.

DIAMOND \rightarrow DNOMAI


D	N	O	M	A	I	D
+1↓	-1↓	+1↓	-1↓	+1↓	-1↓	+1↓
E	M	P	L	B	H	E

Similarly for ROUTINE.

16.

3

16.

DIAGRAM \rightarrow *+△\$+@

17.

2

17.

MY = 16

SUN = 27

Adding positions from back, we get the number

HOTEL = 19 + 12 + 7 + 22 + 15 = 75

18.

4

18.

Aero planes fly in the sky, answer is sea.

19.

3

19.

5 8 4 7 8 3 2 8 5 4 8 2 9 8 6 8 5 4 8 7 8 4 2 8 6 4 5 8 4 9

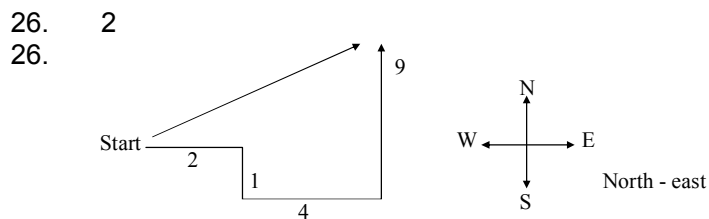
20. 1
 20. J is educated, hard working, polite but not employed.
 21. 2
 21. $35 \div 7 \times 5 + 5 - 6 = 24$

22. 1
 22. $\sqrt[3]{30 - 20} = 2$
 $\sqrt[3]{67 - 40} = 3$
 $\sqrt[3]{416 - 200} = 6$

23. 3
 23. $(4 \times 3) + 2 = 14$
 $(7 \times 3) + 4 = 25$
 $(9 \times 4) + 6 = 42$

24. 3
 24. $9 * 7 = 32 \Rightarrow (9 + 7) \times (9 - 7) = 32$
 $11 * 5 = 96 \Rightarrow (11 + 5) \times (11 - 5) = 96$
 $\therefore \text{Answer} = (17 + 9) \times (17 - 9) = 208$

25. 2
 25. $(8 \times 5) + (1 \times 4) = 44$
 $(6 \times 8) + (2 \times 8) = 64$
 Similarly,
 $(7 \times 9) + (4 \times 8) = 83$



27. 3
 27.

$$AC = \sqrt{(AB)^2 + (BC)^2}$$

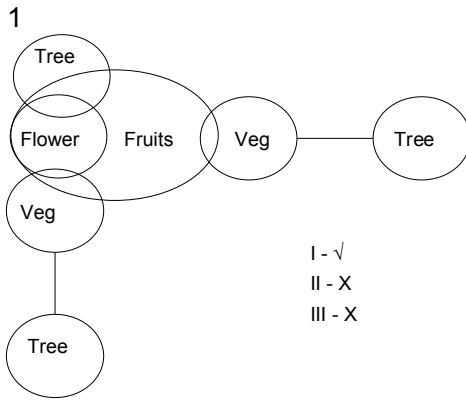
$$AC = \sqrt{(6)^2 + (8)^2}$$

$$AC = \sqrt{36 + 64}$$

$$AC = \sqrt{100}$$

$$AC = 10$$

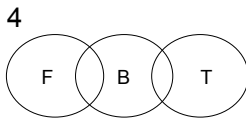
28.
28.



29.
29.

2
The statement talks of "Adversity" in general and not lack of money.
So I does not follow. II correctly explains the statement and hence it follows

30.
30.



31.
31.

4
By observation.

32.
32.

3
By observation.

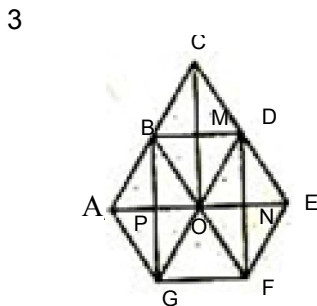
33.
33.

4
By observation.

34.
34.

2
3 - 6 - 2
3 - 5 - 4
↓ opposite
1

35.
35.



Single triangle – APB, APG, BPO, GPO, BMO, MDO, BCM, CMD, DNE, DNO, ONF, ENF, GOF, → 13
Two Δ combination → ABO, AGO, ABG, BOG, BCO, CDO, BCD, BDO, ODE, OEF, ODF, EDF → 12
Three triangle combination → BGF, GDF → 2
Four triangle combination → ACO, COE, GBD, BDF → 4
Eight triangle combination → ACE → 1

$$13 + 12 + 2 + 4 + 1 = 32$$

36. 3

36. The pattern is adding 4 to each of the letters after reversing the order of the letter.

37. 2

37. First and last letters of each word are interchanged.

38. 3

38. $63 : 9 :: 86 : 14$

$$6 + 3 = 9$$

Similarly,

$$8 + 6 = 14$$

39. 4

39. $5 : 64 :: 11 : ?$

$$11 \rightarrow (11+3)^2$$

40. 1

40. By observation.

41. 2

41. REOC; PGME, NIKG, LKII

Logic $\rightarrow -2, +2, -2, +2$

42. 4

42. BYCX, DWEV, FUGT, HSIR

Logic $\rightarrow +2, -2, +2, -2$

43. 3

6	11	26	71	206
$6 \times 3 - 7 = 11$	$11 \times 3 - 7 = 26$	$26 \times 3 - 7 = 71$	$71 \times 3 - 7 = 201$	$206 \times 3 - 7 = 611$

44. 2

81,	192,	375,	648,	1029
$((9)^2 - (0)^2)$	$((14)^2 - (2)^2)$	$((20)^2 - (5)^2)$	$((27)^2 - (9)^2)$	$((35)^2 - (14)^2)$

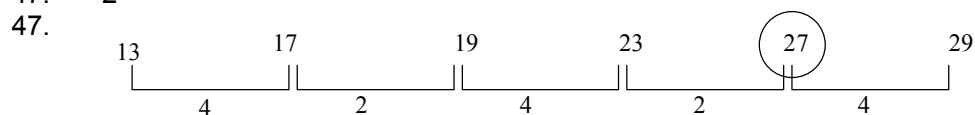
45. 1

45. By observation.

46. 3

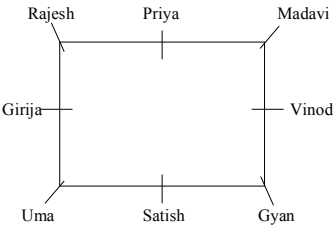
46. Root \rightarrow Stem \rightarrow leaf \rightarrow Flower \rightarrow fruit

47. 2



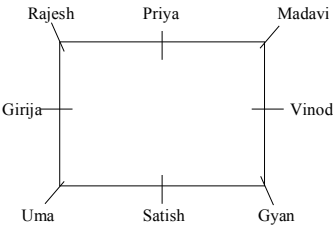
48. 1

48.



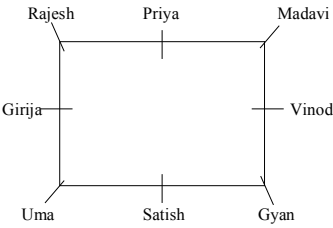
49.

3



50.

2



NTSE STAGE – I (2017- 18)
SET – D
HARYANA STATE
SCHOLASTIC APTITUDE TEST (SAT)
SOLUTIONS

MATHEMATICS

101. 3

101. $5(3(2x+1)+2)+4$

$$30x + 15 + 10 + 4$$

$$30x + 29$$

∴ The numbers are : 119, 149,989

$$989 = 119 + 30(n-1)$$

$$n-1 = \frac{870}{30}$$

$$n-1 = 29$$

$$n = 30$$

102. 2

102. $p = \operatorname{cosec} \theta - \cot \theta = \frac{\sin \theta}{1 + \cos \theta}$

$$p^2 + 1 = \operatorname{cosec}^2 \theta + \cot^2 \theta - 2 \operatorname{cosec} \theta \cot \theta$$

$$= 2 \operatorname{cosec} \theta (\operatorname{cosec} \theta - \cot \theta)$$

$$= \frac{2}{1 + \cos \theta}$$

Now $\frac{p^2 - 1}{p^2 + 1} = 1 - \frac{2}{p^2 + 1} = 1 - \frac{2}{\frac{2}{1 + \cos \theta}} = -\cos \theta$

103. 1

103. Given, $S_m = n$ and $S_n = m$

$$\Rightarrow \frac{m}{2}[2a + (m-1)d] = n \text{ and } \frac{n}{2}[2a + (n-1)d] = m$$

$$\Rightarrow 2am + (m^2 - m)d = 2n \text{ and } 2an + (n^2 - n)d = 2m$$

on subtracting above two equations,

$$\text{we get } 2a + (m+n-1)d = -2$$

$$\text{So, } S_{m+n} = \frac{m+n}{2}[2a + (m+n-1)d]$$

$$= -(m+n)$$

104. 4

104. $x^2 + px - 4 = 0$

$$\alpha + \beta = -p$$

$$\alpha\beta = -4$$

$$\beta = -4 \Rightarrow \alpha = 1$$

$$\therefore p = 1 - 4$$

$$p = 3$$

$x^2 + px + k$ has equal roots

$$p^2 - 4k = 0$$

$$p^2 = 4k$$

$$k = \frac{9}{4}$$

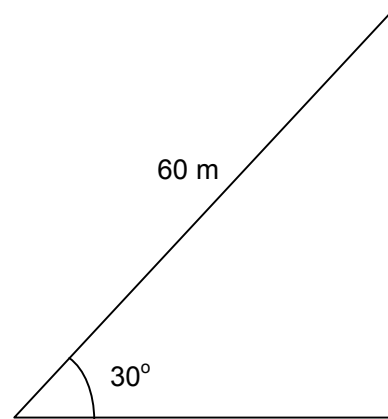
105. 1

105. Speed = 300 m / min = $\frac{300}{60}$ m / sec

Distance traveled = 5×12

= 60 m

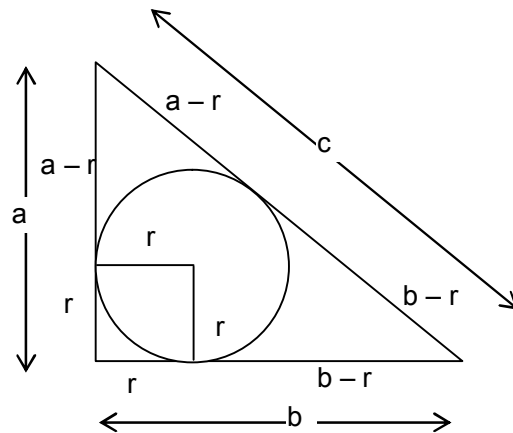
\therefore Height of tree = 30 m



106. 4

106. $a - r + b - r = c$

$$r = \frac{a + b - c}{2}$$



107. 2

107. If roots are reciprocal $\frac{6}{a} = 1$, $a = 6$

$$x = \frac{-15 \pm \sqrt{225 - 144}}{12}$$

$$= \frac{-15 \pm \sqrt{81}}{12}$$

$$= \frac{-15 \pm 9}{12}$$

$$= \frac{-24}{12}, \frac{-6}{12}$$

$$= -2, -\frac{1}{2}$$

108. 2

108. $46n = (n - 4) \times 44.5 + 52 \times 4$
 $\Rightarrow n = 20$

109. 2

109. By using area of triangle formula

We get, $(8p^2 + 4p - 4) = \pm 140$

$$\Rightarrow 8p^2 + 4p - 144 = 0$$

$$\Rightarrow p = 4 \text{ or } p = \frac{-9}{2}$$

Other equation $8p^2 + 4p + 136 = 0$ does not have real roots

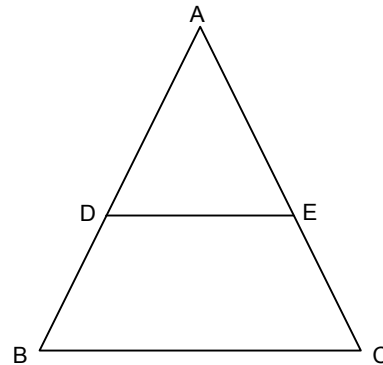
So, numbers of integral values = 1

110. 1

110. $AE : EC = 3 : 2$
 $\Rightarrow AE : AC = 3 : 5$
 Since $\triangle ADE \sim \triangle ABC$

$$\Rightarrow \frac{\text{ar}(\triangle ADE)}{\text{ar}(\triangle ABC)} = \frac{9}{25}$$

So, $\frac{\text{ar}(\triangle ADE)}{\text{ar}(\triangle ECB)} = \frac{9}{16}$



111. 4

111. On solving $x + 2y = 10$ and $3x + 4y = 360$

We get $x = 340$ and $y = -165$

So, $\lambda = \frac{-1}{2}$

112. 2

112. Given $xy = 80$ and $6^3 + x^3 + y^3 = 12^3 \Rightarrow x^3 + y^3 = 1512$

$$\Rightarrow (x + y)^3 - 3xy(x + y) = 1512$$

Let $x + y = a$

So, given equation reduces to $a^3 - 240a - 1512 = 0$

Now, $a = 18$ is root of above equation $\Rightarrow x + y = 18$

113. 3

113. $\cos \theta + \sin \theta = p \Rightarrow \sin \theta \cos \theta = \frac{p^2 - 1}{2}$

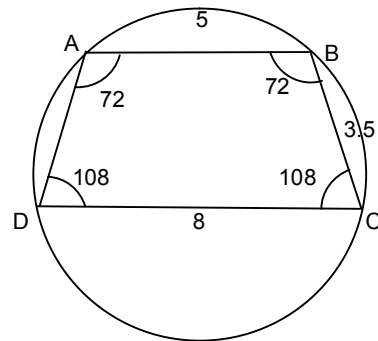
Now, $\sec \theta + \operatorname{cosec} \theta = V$

$$\Rightarrow \frac{\sin \theta + \cos \theta}{\sin \theta \cos \theta} = V$$

$$\Rightarrow V = \frac{2p}{p^2 - 1}$$

114. 2

114. ABCD is an isosceles trapezium,
 $\Rightarrow AD = BC = 3.5$ cm



115. 3

115. 17, 18, 23, 27, $x - 3$, $x + 5$, 45, 49, 74, 85

$$\frac{x - 3 + x + 5}{2} = 35$$

$$\frac{2x + 2}{2} = 35$$

$$x + 1 = 35$$

$$x = 34$$

\therefore The numbers are 17, 18, 23, 31, 39, 45, 49, 72, 74, 85

$$\therefore \text{Median} = \frac{39 + 45}{2} = \frac{84}{2} = 42$$

116. 3

116. Longest altitude corresponds to shortest side = h_{35}
 $s = 75$

$$\Delta = \sqrt{(75)(14)(21)(40)}$$

$$= \sqrt{25 \times 3 \times 2 \times 7 \times 3 \times 4 \times 5 \times 2}$$

$$= 420\sqrt{5}$$

$$\therefore \frac{1}{2} \times 35 \times h_{35} = 420\sqrt{5}$$

$$h_{35} = 24\sqrt{5}$$

117. 2

$$117. P(E) = \frac{1}{2} \times \frac{1}{2} + \frac{1}{2} \times 0$$

$$= \frac{1}{4}$$

118. 4

$$118. x^2 + 5x + d = 0$$

$$a + b = -5$$

$$ab = d$$

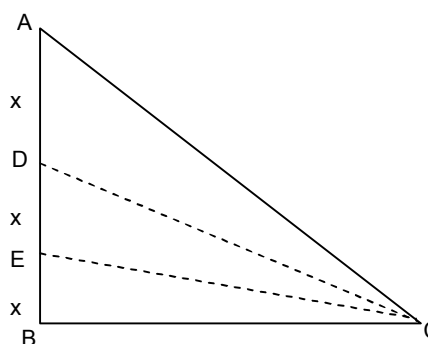
$$x^2 + 6x + 2d = 0$$

$$a + c = -6$$

$$\begin{aligned}
 ac &= 2d \\
 ac &= 2ab \\
 c &= 2b \\
 \Rightarrow a + 2b &= -6 \\
 a + b &= -5 \\
 \Rightarrow b &= -1 \Rightarrow a = -4 \\
 \therefore d &= ab = (-4)(-1) = 4
 \end{aligned}$$

$$\begin{aligned}
 119. \quad & 2 \\
 119. \quad & \text{Mode} = 7 \\
 & \therefore \text{Mean} = 7 \\
 & \therefore \frac{21 + 5 + x}{5} = 7 \\
 & 26 + x = 35 \\
 & x = 9
 \end{aligned}$$

$$\begin{aligned}
 120. \quad & 4 \\
 120. \quad & \frac{AC^2 - EC^2}{DC^2 - BC^2} \\
 & \frac{9x^2 + BC^2 - (x^2 + BC^2)}{4x^2 + BC^2 - BC^2} = \frac{8x^2}{4x^2} = \frac{2}{1}
 \end{aligned}$$

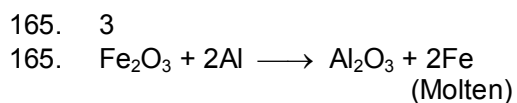
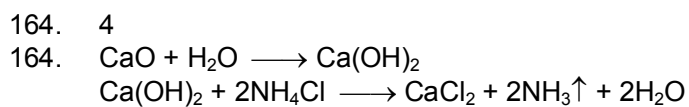


CHEMISTRY

$$\begin{aligned}
 161. \quad & 1 \\
 161. \quad & 46 \text{ gm Na atom} \\
 & \text{Moles} = \frac{46}{23} = 2N_A \text{ atom}
 \end{aligned}$$

$$\begin{aligned}
 162. \quad & 4 \\
 162. \quad & \text{Cheese is a gel.}
 \end{aligned}$$

$$\begin{aligned}
 163. \quad & 3 \\
 163. \quad & \text{Valency of X} = 2, \text{ so correct formula is MgX}
 \end{aligned}$$



166. 1
 166. $\text{Cu} + \text{SO}_4^{2-} \longrightarrow \text{Cu}^{2+} + \text{SO}_2\uparrow$
 (Choking smell)
167. 1
 167. $\text{CH}_3\text{COOH} \xrightarrow{\text{LiAlH}_4} \text{CH}_3\text{CH}_2\text{OH}$
168. 4
 168. Carbon has small size and maximum catenation property.
169. 2
 169. Sodium is present in first group.
170. 4
 170. Baking powder is a mixture of sodium hydrogen carbonate and tartaric acid.
171. 2
 171. ${}_7\text{N}$, ${}_3\text{Li}$, ${}_{15}\text{P}$, ${}_{19}\text{K}$
 Oxides of non-metal are acidic.
172. 3
 172. $\text{MnO}_4^- + \text{Cl}^- \xrightarrow{\text{H}^+} \text{Mn}^{2+} + \text{Cl}_2\uparrow$
173. 1
 173. CO_2 is a gas and SiO_2 is solid due to polymeric structure because it does not form $\text{Si}=\text{O}$ (multiple bonding).

PHYSICS

174. 3
 174. $F \times S = \frac{1}{2}mv^2$
 $F \times S' = \frac{1}{2}m \times 9V^2$
 $S' = 9S$
175. 1
 175. $T = \sqrt{\frac{2h}{g}}$
 $T_a : T_b = \sqrt{a} : \sqrt{b}$
176. 1
 176. $u = V$
 $v = 3V$
 $a = g$
 $S = \frac{v^2 - u^2}{2a}$; $S = \frac{9V^2 - V^2}{2g}$
 $S = \frac{4V^2}{g}$
177. 4
 177. The air bubble has less density than water so it will be collected at the neck.

178. 3

178. $V_3 = V_1 + V_2$ (as V_3 is connected in parallel with V_1 and V_2)

179. 4

179. $V_A + 3 - 7 \times 3 = V_B$

$$V_A - V_B = 18 \text{ V}$$

180. 4

180. $P_1 = \frac{V^2}{3R} = 10 \text{ watt} ; P_2 = \frac{V^2}{R/3}$

$$P_2 = 3 \times \frac{V^2}{R} = 90 \text{ watt}$$

181. 3

181. $B = \frac{\mu_0 i}{2R}$

$$\Rightarrow B' = \frac{\mu_0 (ni)}{2R/n}$$

$$\Rightarrow B' = n^2 \frac{\mu_0 i}{2R}$$

$$\Rightarrow B' = n^2 B$$

182. 3

182. $\frac{1}{V} + \frac{1}{u} = \frac{1}{f}$

$$\Rightarrow \frac{1}{f+p} + \frac{1}{f+q} = \frac{1}{f}$$

$$\Rightarrow f^2 = qp$$

183. 3

183. $-m = \frac{f}{-u_1 + f} ; m = \frac{f}{-u_2 + f}$

$$\therefore \frac{-f}{f - u_1} = \frac{f}{f - u_2}$$

$$\Rightarrow f = \frac{u_1 + u_2}{2}$$

184. 3

184. $P \propto (V)^3$

\therefore If velocity is doubled.

Power will become 8 times.

185. 1

185. Speed of sound does not depend on frequency.

186. 4

186. Outside a bar magnet field lines move from north pole to south pole and inside it moves from south to north.

BIOLOGY

187. 2
187. Plasmid" is made up only of one type of macro molecule.
188. 2
188. The relative energy yield in Kcal/gm is best represented in first ATP, followed Lipid and protein
189. 4
189. The sub units of ribosomes in the cells of nephron of mouse is 60s & 40s
190. 3
190. Involuntary muscles are not found in "tongue"
191. 1
191. Only "denitrifying bacteria" work strictly under anaerobic conditions.
192. 1
192. The correct sequence of the given figure is (iii), (ii), (iv), (i)
193. 2
193. Mylein sheath is not present in grey neurons. (non myleinated neuron)
194. 3
194. The incorrect statement is they convert water and CO₂ into carbohydrate only in the absence of light)"
195. 1
195. The correct pathway of blood in circulatory system is
Atria → Ventricles → Artery → Vein
196. 4
196. "Iodine" is essential for formation of thryoxine in thyroid gland.
197. 2
197. According to Lindemauns' 10% low of energy transfer, only 10% of the energy is transferred from one trophic level to heat.
198. 3
198. both similarities and variation are transmitted from parents to offspring during reproduction.
199. 3
199. During excess of physical exercise, lactic acid gets accumulated in the muscles which causes pain.
200. 2
200. A good food chain includes
Grass, Goat, Lion