

# MAT 2004

## Data Analysis & Sufficiency

### Instructions [1 - 5]

Each item is followed by two statements A and B. Answer each question using the following Options :

1. **A rectangular floor that is 4 metres wide is to be completely covered with square tiles, each with the side of length 0.25 metre. What is the least number of such tiles required?**

- A. The length of the floor is three times the width.**  
**B. The area of the floor is 48 square metres.**

- A** If the question can be answered by one of the statements alone and not by the other.  
**B** If the question can be answered by using either statement alone.  
**C** If the question can be answered by using both the statements together, but cannot be answered by using either statement alone.  
**D** If the question cannot be answered even by using both the statements together.

**Answer: B**

### Explanation:

Width of floor = 4 m and side of square tile = 0.25 m. Now, to find the number of tiles required we need to divide the area of floor by area of tile.

A) : Length = 12 m, thus area of floor = 48 sq. mt

Hence, this statement is sufficient.

B) : Area of floor = 48 sq. mt

Hence, this statement is also sufficient.

=> Ans - (B)

2. **Each student in a class of 40 students voted for exactly one of the three candidates A, B or C for the post of class representative. Did candidate A receive the maximum votes from the 40 votes cast?**

- A. Candidate A received 11 of the votes**  
**B. Candidate C received 14 of the votes**

- A** If the question can be answered by one of the statements alone and not by the other.  
**B** If the question can be answered by using either statement alone.  
**C** If the question can be answered by using both the statements together, but cannot be answered by using either statement alone.  
**D** If the question cannot be answered even by using both the statements together.

**Answer: A**

**Explanation:**

Total number of student in class = 40

A) : Candidate A received 11 of the votes

Since, A received less than half the number of votes, then A did not receive the maximum number of votes.

Thus, statement A alone is sufficient.

B) : Candidate C received 14 of the votes

Now, A could have received more than 20 votes or even less than 14, since it cannot be determined, hence this statement alone is not sufficient.

=> Ans - (A)

3.  $I_1, I_2$  and  $I_3$  are lines in a plane. Is  $I_1$  perpendicular to  $I_3$ ?

A.  $I_1$  is perpendicular to  $I_2$

B.  $I_2$  is perpendicular to  $I_3$

A If the question can be answered by one of the statements alone and not by the other.

B If the question can be answered by using either statement alone.

C If the question can be answered by using both the statements together, but cannot be answered by using either statement alone.

D If the question cannot be answered even by using both the statements together.

**Answer: C**

**Explanation:**

Clearly, each statement alone is insufficient, as there is information about only two lines in each statement.

By combining, both statements, we get that if  $I_1$  is perpendicular to  $I_2$  and  $I_2$  is perpendicular to  $I_3$ , then  $I_1$  is parallel to  $I_3$

Thus, the answer to the question is : No,  $I_1$  is not perpendicular to  $I_3$ , which is feasible by combining both statements.

=> Ans - (C)

4. Was 70 the average grade on a class test?

A. On the test, half of the class had grades below 70 and half of the class had grades above 70.

B. The lowest grade on the test was 45 and the highest grade on the test was 95.

A If the question can be answered by one of the statements alone and not by the other.

B If the question can be answered by using either statement alone.

C If the question can be answered by using both the statements together, but cannot be answered by using either statement alone.

D If the question cannot be answered even by using both the statements together.

**Answer: D**

**Explanation:**

A) : Let us assume there are two students in the class, scores of each are 68 and 73 respectively. (Since, half scored less than 70 and half more than 70)

Now, average is not equal to 70, but if each scored 68 and 72, then the average will be 70.

Since, marks are not given, hence this statement alone is not sufficient.

B) : Similarly this statement alone is also not sufficient, as marks of rest of the students are not given.

Even by combining both statements, we wont be able to find the average.

=> Ans - (D)

5. If  $x$  is an integer, then what is the value of  $x^2$  ?

A.  $\left(\frac{1}{5}\right) < \left(\frac{1}{(x+1)}\right) < \left(\frac{1}{2}\right)$

B.  $(x - 3)(x - 4) = 0$

A If the question can be answered by one of the statements alone and not by the other.

B If the question can be answered by using either statement alone.

C If the question can be answered by using both the statements together, but cannot be answered by using either statement alone.

D If the question cannot be answered even by using both the statements together.

**Answer:** C

**Explanation:**

A) :  $\left(\frac{1}{5}\right) < \left(\frac{1}{(x+1)}\right) < \left(\frac{1}{2}\right)$

=>  $2 < (x + 1) < 5$

=>  $1 < x < 4$

Thus, possible values of  $x$  are : 2, 3 and since there is not a unique value, hence this statement alone is insufficient.

B) :  $(x - 3)(x - 4) = 0$

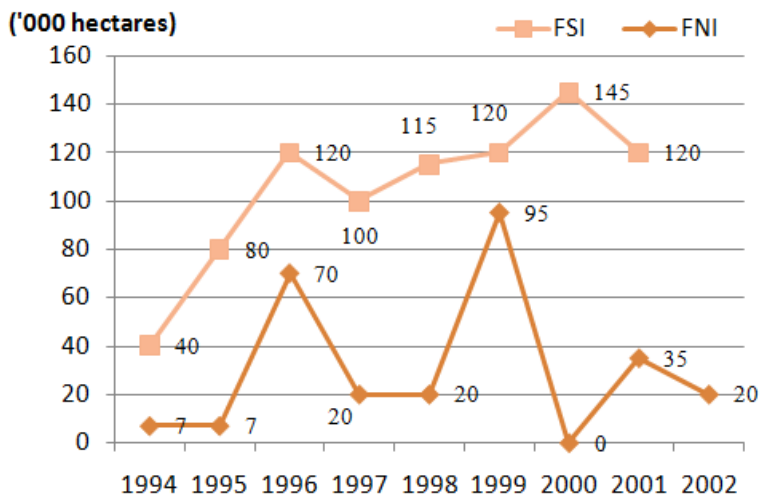
=>  $x = 3, 4$

Similarly, this statement alone is also not sufficient. But by combining both statements, we get :  $x = 3$  and  $x^2 = 9$

=> Ans - (C)

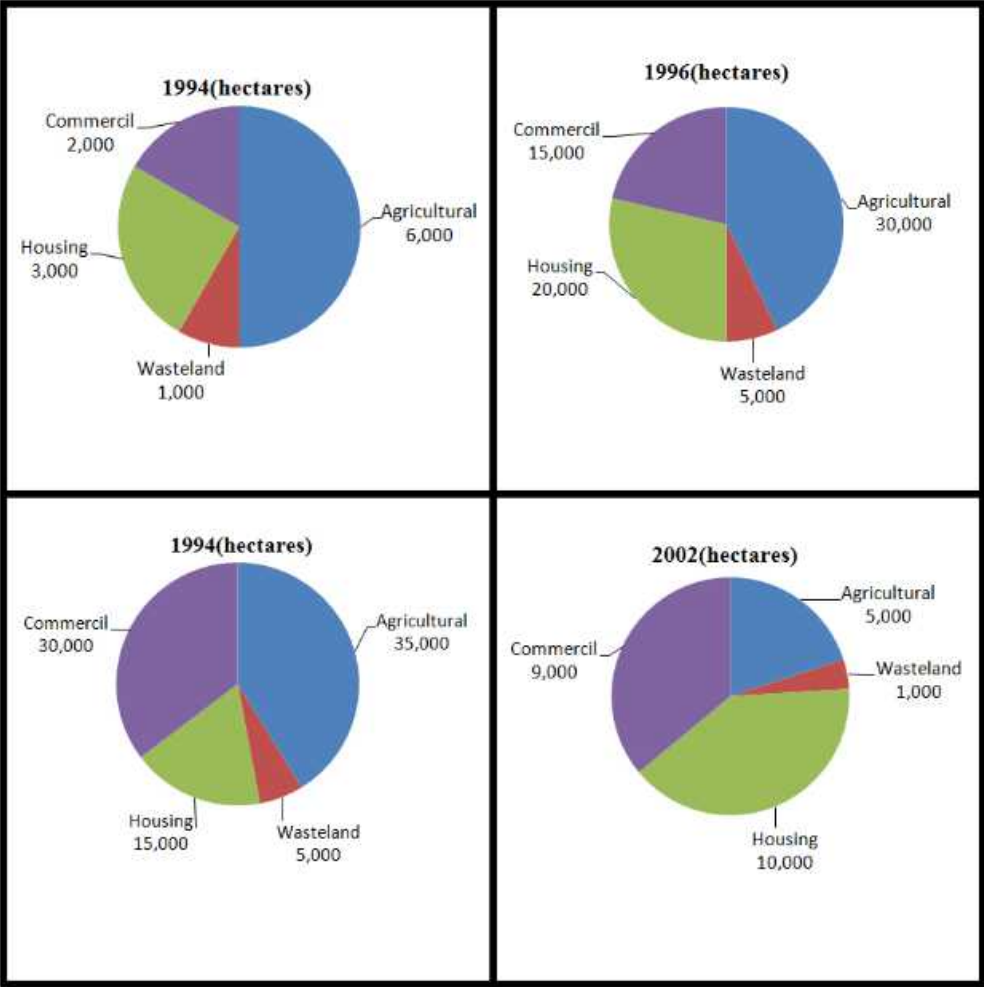
**Instructions [6 - 8 ]**

Refer to the given line graph and the pie charts to answer these questions:



FNI - Distribution of Forest Land in North India  
 FSI - Distribution of Forest Land in South India

FOREST LAND IN NORTH INDIA



6. How many hectares of FSI has been distributed between 1994-2002?

- A 3,00,500
- B 2,77,500
- C 6,57,000

**D** 9,00,000

**Answer:** D

7. How many years witnessed a decline in FNI and an increase in FSI?

**A** 2

**B** 3

**C** 4

**D** 5

**Answer:** A

8. During 1994-2002, the greatest proportion of FNI was put to commercial use in

**A** 1994

**B** 1996

**C** 1999

**D** 2002

**Answer:** D

### Instructions [9 - 10 ]

Study the information given below to answer these questions:

Investing in real estate would be a profitable venture at this time. A survey in House magazine revealed that 85% of the magazine's readers are planning to buy a second home over the next few years. A study of the real estate industry, however, revealed that the current supply of homes could only provide for 65% of that demand each year.

9. Which of the following, if true, reveals a weakness in the evidence cited above?

**A** Real estate is a highly labour-intensive business.

**B** Home builders are not evenly distributed across the country.

**C** The number of people who want second homes has been increasing each year for the past 10 years.

**D** Readers of House magazine are more likely than most people to want second homes.

**Answer:** A

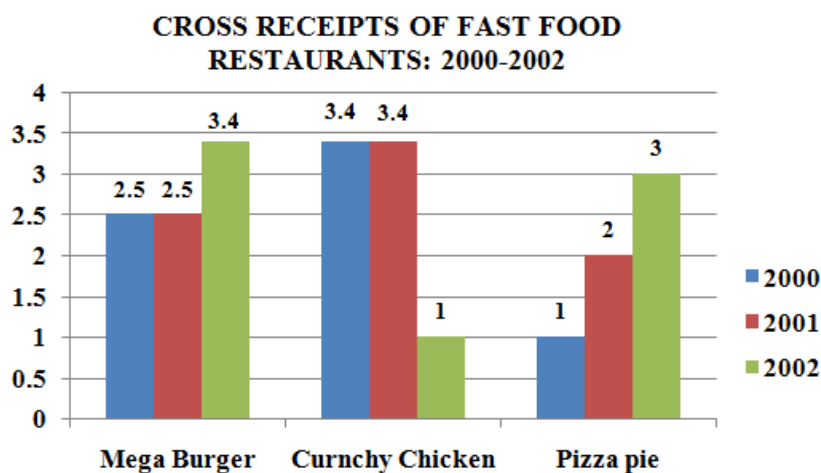
10. Which of the following, if true, would undermine the validity of the investment advice in the paragraph above?

- A** Some home-owners are satisfied with only one home.
- B** About half of the people who buy homes are investing in their first home.
- C** Only a quarter of the homes that are built are sold within the first 2 weeks.
- D** Only a quarter of those who claim that they want a second home actually end up purchasing one.

**Answer: D**

### Instructions [11 - 13]

The following graph represents the Gross Receipts of three fast food restaurants from 2000-2002. Use it to answer these questions:



11. The 2000-2002 gross receipts for Mega Burger exceeded those of Pizza Pie by approximately

- A** 0.2 million
- B** 2 million
- C** 8.2 million
- D** 8.4 million

**Answer: B**

#### Explanation:

Gross receipts of mega burger =  $2.5 + 2.5 + 3.4 = 8.4$  million

Gross receipts of pizza pie =  $1 + 2 + 3 = 6$  million

=> Required difference  $\approx 2$  million

=> Ans - (B)

12. From 2001-2002, the percent increase in receipts for Pizza Pie exceeded the percent increase of Mega Burger by approximately

**A** 2.67 %

**B** 2%

**C** 10%

**D** 15%

**Answer: D**

**Explanation:**

% increase in receipts of pizza pie from 2001-2002 =  $\frac{(3-2)}{2} \times 100 = 50\%$

% increase in receipts of mega burger from 2001-2002 =  $\frac{(3.4-2.5)}{2.5} \times 100 = 36\%$

=> Required difference  $\approx 15\%$

=> Ans - (D)

13. **The 2002 decline in Crunchy Chicken receipts may be attributed to the**

**A** Increase in popularity of burgers

**B** Increase in popularity of pizzas

**C** Decrease in demand for chicken

**D** Cannot be determined

**Answer: C**

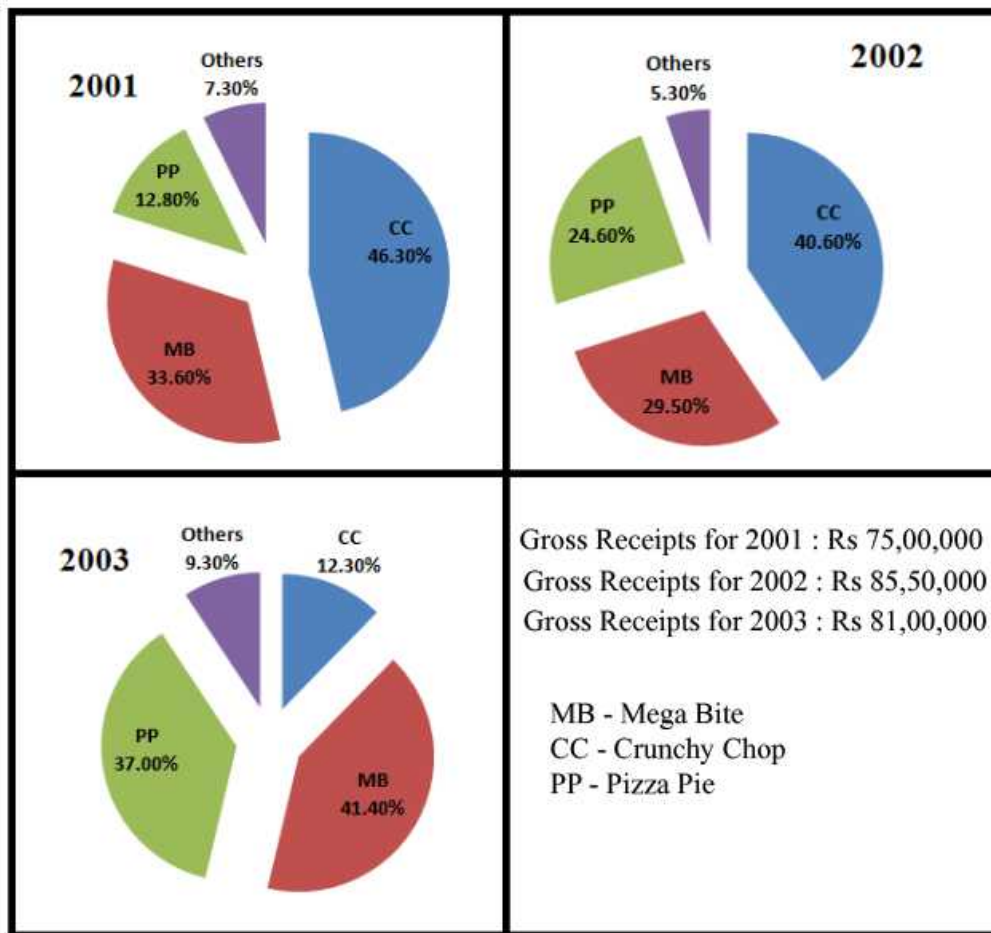
**Explanation:**

In 2002, there are increasing receipts of burgers and pizzas, but we cannot say for sure, why it declined for crunchy chicken.

=> Ans - (C)

### **Instructions [14 - 16 ]**

The Following graphs represent Gross Receipts of all the major fast Food restaurants from 2001-2003. Use them to answer these questions:



14. The gross receipts for 2001 are approximately what percent of the gross receipts for all the three years?

- A 30%
- B 46.3%
- C 46.7%
- D Cannot be determined

**Answer: A**

**Explanation:**

Gross receipts for 2001 = Rs. 75,00,000

Gross receipt for all three years = Rs. (75,00,000+85,50,000+81,00,000) = Rs. 2,41,50,000

=> Required percentage =  $\frac{7500000}{24150000} \times 100 \approx 30\%$

=> Ans - (A)

15. Over all the three years, the average percentage of gross receipts for Crunchy Chop exceeds the average percentage of gross receipts for Pizza Pie by approximately

- A 53%
- B 30%



**C** 23%

**D** 8%

**Answer: B**

**Explanation:**

Gross receipts of Crunchy Chop over the years =  $\left(\frac{46.3}{100} \times 75,00,000\right) + \left(\frac{40.60}{100} \times 85,50,000\right) + \left(\frac{12.30}{100} \times 81,00,000\right)$

$$= 34,72,500 + 34,71,300 + 9,96,300 = 79,40,100$$

Gross receipts of Pizza Pie over the years =  $\left(\frac{12.80}{100} \times 75,00,000\right) + \left(\frac{24.60}{100} \times 85,50,000\right) + \left(\frac{37}{100} \times 81,00,000\right)$

$$= 9,60,000 + 21,03,300 + 29,97,000 = 60,60,300$$

$$\Rightarrow \text{Required \%} \approx \frac{(80,00,000 - 60,00,000)}{60,00,000} \times 100$$

$$= \frac{100}{3} = 33.3 \approx 30\%$$

$\Rightarrow$  Ans - (B)

16. The gross receipts earned by the other restaurants in 2002 amount to precisely

**A** Rs. 18,10,650

**B** Rs. 7,53,300

**C** Rs. 5,47,500

**D** Rs. 4,53,150

**Answer: D**

**Explanation:**

Total gross receipts for 2002 = Rs. 85,50,000

Gross receipts earned by the other restaurants in 2002 =  $\frac{5.3}{100} \times 85,50,000$

$$= \text{Rs. 4,53,150}$$

$\Rightarrow$  Ans - (D)

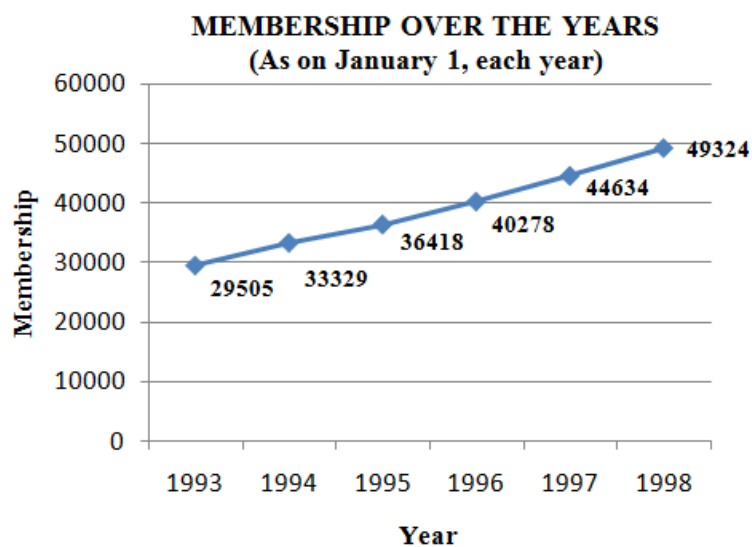
### Instructions [17 - 21 ]

The data in the following table and graph pertains to the Fellow and Associate categories of professionals. Study the data and line graph given below to answer these Questions:

Region	Fellows				Associates			
	Full Time practice	Part Time practice	Not In practice	Total	Full Time practice	Part Time practice	Not In practice	Total
I	4089	665	380	5134	51150	3121	3288	57554
II	3184	387	380	3951	3196	1223	4184	8603
III	1872	221	252	2345	1526	635	2138	4299
IV	1290	187	113	1590	1755	401	851	3007
V	2550	302	221	3073	3659	838	1331	5828
Total	12985	1762	1346	16093	61286	6218	11787	79291

#### Number of branches in each region

- I. Western Region – 14
- II. Southern Region – 26
- III. Eastern region – 3
- IV. Central Region – 17
- V. Northern Region – 7



17. The total number of associates is nearly ..... times the total number of Fellows of all the five regions.

- A** Four
- B** Five
- C** Three
- D** Two

**Answer: B**

#### Explanation:

Total number of associates of all the five regions = 79291

Total number of fellows of all the five regions = 16093

$$\Rightarrow \text{Required ratio} = \frac{79291}{16093} \approx \frac{80000}{16000} = 5$$

$\Rightarrow$  Ans - (B)

18. The category showing the total number of Fellows of all the regions as nearly one - ninth of the total Associates of all the regions is

- A** In Full time practice
- B** In part time practice
- C** Not in practice
- D** None of these

**Answer: C**

**Explanation:**

We need the ratio of Associates : Fellows = 9 : 1

$$(A) : \text{Full time} = \frac{61286}{12985} \approx 4.5$$

$$(B) : \text{Part time} = \frac{6218}{1762} \approx 3.5$$

$$(C) : \text{Not in practice} = \frac{11787}{1346} \approx 9$$

=> Ans - (C)

19. The regions having the number of branches in the ratio 1 : 2 are

- A** Central and Southern
- B** Western and Southern
- C** Central and Eastern
- D** Northern and Western

**Answer: D**

**Explanation:**

Clearly, number of branches in northern region = 7

and number of branches in western region = 14

$$\Rightarrow \text{Required ratio} = \frac{7}{14} = 1 : 2$$

Thus, northern and western region have branches in the ratio = 1:2

=> Ans - (D)

20. The average number of Fellows per branch of the Eastern region is approximately

- A** 982

**B** 780

**C** 690

**D** 885

**Answer: B**

**Explanation:**

Number of fellows of eastern region (III) = 2345

Number of branches = 3

$$\Rightarrow \text{Required average} = \frac{2345}{3} = 781.67 \approx 780$$

$\Rightarrow$  Ans - (B)

21. **The average growth of membership per year is**

**A** 3600

**B** 3964

**C** 4238

**D** 4100

**Answer: B**

**Explanation:**

Average growth of membership per year = (membership in last year - membership in first year)/difference in years

$$= \frac{(49324 - 29505)}{5} \approx \frac{19820}{5} = 3964$$

$\Rightarrow$  Ans - (B)

**Instructions [22 - 26 ]**

Each of these questions consists of two quantities, one in Column A and the other in Column B. Compare the two quantities and mark your answer as

22. **Quantities 1 : The number of posts needed for a fence 144 m long when posts are placed 1.2 m apart.**

**Quantities 2 : 12 posts.**

**A** If the quantity in Column A is greater.

**B** If the quantity in Column B is greater.

**C** If the two quantities are equal.

**D** If the relationship cannot be determined from the information given.

**Answer: A**

**Explanation:**

Quantity 1 : Number of posts needed =  $\frac{144}{1.2} = 120$  posts

Quantity 2 : 12 posts

=> Quantity 1 is greater.

=> Ans - (A)

23. Quantities 1 :  $3\left(\frac{1}{2}\right)\%$   
Quantities 2 :  $3\left(\frac{35}{1000}\right)$

**A** If the quantity in Column A is greater.

**B** If the quantity in Column B is greater.

**C** If the two quantities are equal.

**D** If the relationship cannot be determined from the information given.

**Answer: B**

**Explanation:**

Quantity 1 :  $3\left(\frac{1}{2}\right)\%$

$$= \frac{7}{2} \times \frac{1}{100} = 0.035$$

Quantity 2 :  $3\left(\frac{35}{1000}\right)$

$$= 0.105$$

=> Quantity 2 is greater.

=> Ans - (B)

24. Quantities 1 : Distance covered by a motorist going at 50 km per hour from 10:55 p.m. to 11:25 p.m. the same evening is  
Quantities 2 : 25 km

**A** If the quantity in Column A is greater.

**B** If the quantity in Column B is greater.

**C** If the two quantities are equal.

**D** If the relationship cannot be determined from the information given.

**Answer: C**

**Explanation:**

Quantity 1 : Distance covered in half hour travelling at 50 km/hr

$$= \frac{1}{2} \times 50 = 25 \text{ km}$$

Quantity 2 : 25 km

Thus, both are equal.

=> Ans - (C)

25. **Quantities 1** :  $\left(\frac{x}{4}\right)\%$  of 400  
**Quantities 2** :  $x$

**A** If the quantity in Column A is greater.

**B** If the quantity in Column B is greater.

**C** If the two quantities are equal.

**D** If the relationship cannot be determined from the information given.

**Answer: C**

**Explanation:**

Quantity 1 :  $\left(\frac{x}{4}\right)\%$  of 400

$$= \frac{x}{400} \times 400 = x$$

Quantity 2 :  $x$

Thus, both are equal.

=> Ans - (C)

26. **Quantities 1** : The average of  $\sqrt{81}$ , 60%, 1  $\left(\frac{1}{2}\right)$   
**Quantities 2** : 3

**A** If the quantity in Column A is greater.

**B** If the quantity in Column B is greater.

**C** If the two quantities are equal.

**D** If the relationship cannot be determined from the information given.

**Answer: A**

**Explanation:**

Quantity 1 : Average =  $\frac{9+0.6+1.5}{3}$

$$= \frac{11.1}{3} = 3.7$$

Quantity 2 : 3

=> Quantity 1 is greater.

=> Ans - (A)

**Instructions [27 - 28 ]**

In each of these questions, there is a statement with two assumptions numbered I and II. Consider the statement and the assumptions to decide which assumption is/are implicit in the statement. Give your answer as

27. **Of all the newspapers published in Bangalore, readership of TTI is the highest in the metropolis.**

**I. TTI is not popular in mofussil areas.**

**II. TTI has the popular feature of political cartoons in it.**

- A** If assumption I is implicit.
- B** If assumption II is implicit.
- C** If either assumption I or II is implicit.
- D** If neither assumption I nor II is implicit.

**Answer: D**

28. **If any time, you have financial difficulties, come to me, I will help you out.**

**I. You have financial difficulties.**

**II. promise to provide you financial help.**

- A** If assumption I is implicit.
- B** If assumption II is implicit.
- C** If either assumption I or II is implicit.
- D** If neither assumption I nor II is implicit.

**Answer: B**

### **Instructions [29 - 30 ]**

Given below are two statements followed by two conclusions numbered I and II. Assume the statements to be true even if they show variance from your own experience. Decide which conclusion logically follows from the two statements. Give your answer as

29. **Some nurses are nuns.**

**Maya is a nun.**

**I. Some nuns are nurses.**

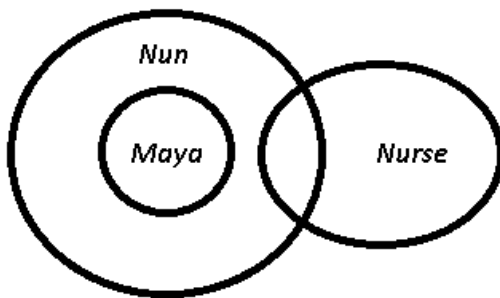
**II. Some nurses are not nuns.**

- A** If only conclusion I follows.
- B** If only conclusion II follows.
- C** If either of the conclusions follows.
- D** If neither of the conclusions follows.

**Answer: C**

**Explanation:**

The venn diagram for above statements is :



Conclusions : I. Some nuns are nurses = true

II. Some nurses are not nuns = may or may not be true (depending on first).

Thus, either conclusion I or II follows.

=> Ans - (C)

30. **All apples are oranges.**

**Some oranges are papayas.**

**I. Some apples are papayas.**

**II. Some papayas are apples.**

**A** If only conclusion I follows.

**B** If only conclusion II follows.

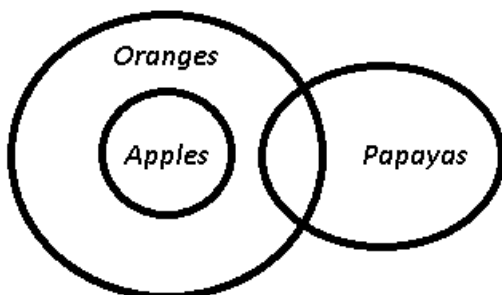
**C** If either of the conclusions follows.

**D** If neither of the conclusions follows.

**Answer: D**

**Explanation:**

The venn diagram for above statements is :



Conclusions :I. Some apples are papayas = false

II. Some papayas are apples. = false

Thus, neither conclusion follows.

=> Ans - (D)

**Instructions [31 - 33 ]**

In each of these questions, there is given a statement followed by two courses of action numbered I and II. A course of action is an administrative step or decision to be taken for improvement, follow up or further



action regarding the problem on the basis of the information in the statement. Assume everything in the statement to be true and decide which course of action follows logically from the given statement. Give your answer as

31. **In spite of the principal's repeated warnings, a child was caught exploding crackers secretly in the school.**
- I. All crackers should be taken away from the child and he should be threatened never to do it again.**
  - II. The child should be severely punished for his wrong act.**
- A** If only action I follows.
- B** If only action II follows.
- C** If either action I or II follows.
- D** If neither action I nor II follows.

**Answer: B**

**Explanation:**

Since the act has been repeated despite various warnings, so course I would only be another warning and would not help. Severe punishment to set example for him and others is inevitable. Thus, course II shall follow.

=> Ans - (B)

32. **Most children in India are unable to get an education as they get involved in earning a livelihood during their childhood itself.**
- I. Education should be made compulsory for all children upto the age of 14.**
  - II. Employment of children under the age of 14 years should be banned.**
- A** If only action I follows.
- B** If only action II follows.
- C** If either action I or II follows.
- D** If neither action I nor II follows.

**Answer: A**

33. **The Asian Development Bank has approved a \$285 million loan to finance a project to construct coal ports by Madras port and Paradip port trusts.**
- I. India should use financial assistance from other international financial organisations to develop such ports in other places.**
  - II. India should not seek assistance from foreign agencies.**
- A** If only action I follows.

- B** If only action II follows.
- C** If either action I or II follows.
- D** If neither action I nor II follows.

**Answer: A**

**Explanation:**

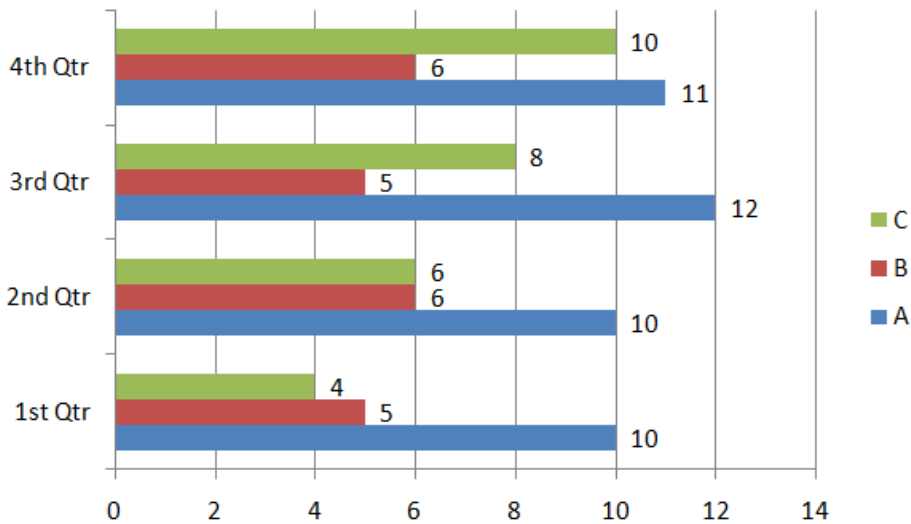
Such kind of products should be encouraged because they form important assets and will bring lot of profit in the country. So, India should use financial assistance.

Thus only action I follows.

=> Ans - (A)

**Instructions [34 - 35 ]**

In answering these questions, you have to use the revenue data for the three companies A, B and C provided in the graph:



34. Which quarter has the highest average revenue?

- A** First
- B** Second
- C** Third
- D** Fourth

**Answer: D**

**Explanation:**

Quarter which has the highest revenue will also have the highest average revenue. Revenue of Quarter :

First =  $4+5+10 = 19$

Second =  $6+6+10 = 22$

Third =  $8+5+12 = 25$

Fourth =  $10+6+11 = 27$  **[MAX]**

=> Ans - (D)

35. What is the total revenue for all the companies in all the quarters?

**A** 89

**B** 90

**C** 91

**D** 93

**Answer:** D

**Explanation:**

Total revenue for all the companies in all the quarters

$$= (4 + 5 + 10) + (6 + 6 + 10) + (8 + 5 + 12) + (10 + 6 + 11) = 93$$

=> Ans - (D)

**Instructions [36 - 40 ]**

In each of these question, you are given two statements. To answer these questions, you can use one or both the statements. Give your answer as

36. How many hours will it take for all the students and teachers together to put up a tent?

**A. There are 4 teachers and 7 students.**

**B. All the teachers working together can put up the tent in 5 hours while all the students working together can do so in 3 hours.**

**A** If statement A ALONE is sufficient to answer the given question, but statement B alone is not.

**B** If statement B ALONE is sufficient to answer the given question, but statement A alone is not.

**C** If both the statements TOGETHER are sufficient to answer the given question, but neither statement alone is sufficient.

**D** If both the statements are INDEPENDENTLY sufficient to answer the given question.

**Answer:** B

**Explanation:**

Statement A alone is insufficient, as there is no time given and statement B alone is sufficient, as the number of teachers and students are missing.

All the teachers can complete  $\frac{1}{5}$  of work in 1 hour and all students can complete  $\frac{1}{3}$  of work in 1 hour. Therefore in 1 hr they can complete  $\frac{8}{15}$  of work in 1 hour and total work will be completed in  $\frac{15}{8}$  hours.

$\therefore$  Statement B alone is sufficient.

=> Ans - (B)

37. What is the remainder when the square of  $N$  is divided by 5?

- A. When  $N$  is divided by 5, the remainder is 3.
- B.  $N$  is an even integer.

- A** If statement A ALONE is sufficient to answer the given question, but statement B alone is not.
- B** If statement B ALONE is sufficient to answer the given question, but statement A alone is not.
- C** If both the statements TOGETHER are sufficient to answer the given question, but neither statement alone is sufficient.
- D** If both the statements are INDEPENDENTLY sufficient to answer the given question.

**Answer: A**

**Explanation:**

A : When  $N$  is divided by 5, the remainder is 3.

=>  $N = 5k + 3$ , where  $k$  is an whole number.

Let  $k = 0$ , =>  $N = 3$

Thus, when  $N^2 = 9$  is divided by 5, remainder = 4

=> Statement A alone is sufficient.

Clearly, second statement is insufficient, as there can be multiple solutions.

=> Ans - (A)

38. What is the value of the 2-digit number  $ab$ ?

- A. The difference between its digits is 4.
- B. The sum of its digits is 4.

- A** If statement A ALONE is sufficient to answer the given question, but statement B alone is not.
- B** If statement B ALONE is sufficient to answer the given question, but statement A alone is not.
- C** If both the statements TOGETHER are sufficient to answer the given question, but neither statement alone is sufficient.
- D** If both the statements are INDEPENDENTLY sufficient to answer the given question.

**Answer: C**

**Explanation:**

Let the digits of the number be  $x$  and  $y$

Clearly, each statement alone is not sufficient as there can be many possibilities. By combining the above statements, we get :

$$\Rightarrow x + y = 4 \text{ and } x - y = 4$$

By solving above equations, we get :  $x = 4$  and  $y = 0$ , thus number = **40**

$\therefore$  Both statements together are sufficient.

$\Rightarrow$  Ans - (C)

39. **a, b and c are the three digits of a number abc. abc is a multiple of 3. Find (a + b + C).**

**A. a = 3, b = 4.**

**B. C is an odd number.**

**A** If statement A ALONE is sufficient to answer the given question, but statement B alone is not.

**B** If statement B ALONE is sufficient to answer the given question, but statement A alone is not.

**C** If both the statements TOGETHER are sufficient to answer the given question, but neither statement alone is sufficient.

**D** If both the statements are INDEPENDENTLY sufficient to answer the given question.

**Answer: C**

**Explanation:**

If  $abc$  is a multiple of 3, then  $(a + b + c)$  will also be multiple of 3.

(A) :  $a = 3$  and  $b = 4$

$\Rightarrow 3 + 4 + c = 3k$ , where  $k$  is a natural number.

$\Rightarrow$  Possible values of  $c = 2, 5, 8$

Thus, statement A alone is not sufficient.

(B) : If C is odd, there can be multiple values of the number, thus statement B alone is insufficient.

By combining above statements together, we get the number as **345**

$\therefore$  Both statements together are sufficient.

$\Rightarrow$  Ans - (C)

40. **N is an integer between 1 and 93. What is the value of N?**

**A. N is both the square and the cube of an integer.**

**B. The square root of N is divisible by 8.**

**A** If statement A ALONE is sufficient to answer the given question, but statement B alone is not.

**B** If statement B ALONE is sufficient to answer the given question, but statement A alone is not.

- C** If both the statements TOGETHER are sufficient to answer the given question, but neither statement alone is sufficient.
- D** If both the statements are INDEPENDENTLY sufficient to answer the given question.

**Answer: B**

**Explanation:**

(A) : Perfect squares between 1 and 93 = 1,4,9,16,25,36,49,64,81

Perfect cubes between 1 and 93 = 1,8,27,64

=> Possible values of N = 1, 64

Thus, first statement alone is not sufficient.

(B) : Number of square roots between 1 and 93 = 1,2,3,4,5,6,7,8

Now, since it is divisible by 8, only one possible value of N exist, =>  $N = 64$

∴ Statement B alone is sufficient.

=> Ans - (B)

## Intelligence & Critical Reasoning

### Instructions [41 - 44 ]

Refer the Following information to answer these questions:

Six items — U, V, W, X, Y and Z are being separated into 3 Groups — Group 1, Group 2 and Group3, according to the following conditions:

- (i) The number of items in Group 1 is less than or equal to the number of items in Group 2.
- (ii) The number of items in Group2 is less than or equal to the number of items in Group 3.
- (iii) Vand W cannot be in the same group.
- (iv) X can be in Group 3 onlyif Y is in Group 3.

41. Which one of the following is an acceptable grouping of the six items?

- A** Group 1 - UV Group 2 - WXY Group 3 - Z
- B** Group 1 - X Group 2 - Y Group 3 - VZUW
- C** Group 1 - V Group 2 - YW Group 3 - XUZ
- D** Group 1 - V Group 2 - Z Group 3 - XYUW

**Answer: D**

42. If Group 1 contains only the item Y, then which of the following must be true?

- A** Group 3 contains four items

- B** Group 2 contains the same number of items as Group 3
- C** V is in Group 3
- D** X is in Group 2

**Answer: D**

43. If W and Y are in the same group and V is in Group 3, then which of the following must be false?

- A** W and Y are in Group 2
- B** U is the only item in Group 1
- C** X is the only item in Group 1
- D** U is in Group 3

**Answer: B**

44. If Group 2 contains only one item, which is neither W nor V, then which of the following must be true?

- A** Group 1 contains only V or only W
- B** Group 3 contains W
- C** Group 1 contains both U and V
- D** Group 2 contains Z

**Answer: A**

#### **Instructions [45 - 48 ]**

in each of these questions, a statement is given, followed by two conclusions. Give your answer as

45. **Statement: This world is neither good nor evil; each man manufactures a world for himself.**

**Conclusions:**

- I. Some people find this world quite good.**
- II. Some people find this world quite bad.**

- A** If only conclusion I follows.
- B** If only conclusion II follows.
- C** If either conclusion I or II follows.
- D** If neither conclusion I nor II follows.

**Answer: C**

46. **Statement:** Domestic demand has been increasing faster than the production of indigenous crude oil.

**Conclusions:**

**I. Crude oil must be imported.**

**II. Domestic demand must be reduced.**

**A** If only conclusion I follows.

**B** If only conclusion II follows.

**C** If either conclusion I or II follows.

**D** If neither conclusion I nor II follows.

**Answer: C**

47. **Statement:** Parents are prepared to pay any price for an elite education to their children.

**Conclusions:**

**I. All parents these days are very well off.**

**II. Parents have an obsessive passion for a perfect development of their children through good schooling.**

**A** If only conclusion I follows.

**B** If only conclusion II follows.

**C** If either conclusion I or II follows.

**D** If neither conclusion I nor II follows.

**Answer: B**

48. **Statement:** From the next academia year, students will have the option of dropping Mathematics and Science for their school living.

**Conclusions:**

**I. Students who are weak in Science and Mathematics will be admitted.**

**II. Earlier, the students did not have the choice of continuing their education without these subjects.**

**A** If only conclusion I follows.

**B** If only conclusion II follows.

**C** If either conclusion I or II follows.

**D** If neither conclusion I nor II follows.

**Answer: B**

**Instructions [49 - 53 ]**



Read the following statements to answer these questions.

- (i) A,B,C, D, E and F form a group of friends from a club.
- (ii) There are two house wives, one lecturer, one architect, one accountant and one lawyer in the group.
- (iii) There are 2 married couples in the group.
- (iv) The lawyer is married to D who is a housewife.
- (v) No lady in the group is either an accountant or architect.
- (vi) C, the accountant, is married to F, the lecturer.
- (vii) A is married to D, and E is not a housewife.

49. Which of the following is a married couple?

- A** BA
- B** AF
- C** CE
- D** None of the these

**Answer: D**

50. What is E's profession?

- A** Lawyer
- B** Architect
- C** Lecturer
- D** Accountant

**Answer: B**

51. How many members of the group are males?

- A** Can't say
- B** 2
- C** 3
- D** 4

**Answer: C**

52. How is B related to C?

- A** Brother or sister

- B** Brother
- C** Sister
- D** Can't say

**Answer: D**

53. Which of the statements (i) to (vii) is superfluous to find answers to the questions above?

- A** i
- B** ii
- C** iv
- D** None

**Answer: D**

#### Instructions [54 - 55 ]

Study the information given below to answer these questions:

A, B, C, D are all related. A is the daughter of B. B is the son of C. C is the father of D.

54. Which of the following statements is true?

- A** B and D are brothers
- B** A is D's daughter
- C** If E is B's daughter, then she is A's sister
- D** If F is C's grand-daughter, then she is A's sister

**Answer: C**

55. Which of the following is necessarily false?

- A** D is A's aunt
- B** D is A's uncle
- C** A is D's niece
- D** A is D's father's son's grand daughter

**Answer: D**

#### Instructions [56 - 58 ]

Study the information given below to answer these questions:

Anna, Bhai, Nana, Dada, Appa and Bal are brothers. They are having their dinner seated at a round table. Appa is next to Nana who is 3 seats from Dada. Annais seated 2 seats away from Bal.

56. **Which is necessarily true?**

- A** Anna is next to Dada
- B** Anna is next to Bhai
- C** Anna is next to Appa
- D** Anna is opposite Nana

**Answer: A**

57. **If Bal does not want to be with Bhai, then**

- A** Appa has to sit next to Bhai
- B** Bhai has to sit next to Anna
- C** Dada is next to Appa
- D** Dada and Appa are both next to Anna

**Answer: B**

58. **Which of the following is necessarily true?**

- A** Appa is to the right of Nana
- B** Appa is to the left of Dada
- C** Nana is to the left of Anna
- D** None of these

**Answer: D**

**Instructions [59 - 64 ]**

Find the missing link in the sequences given in each of these questions:

59. **2, 3, 8, 63, ?**

- A** 1038
- B** 3008
- C** 3968

**D** 3268

**Answer:** C

60. 1, 4, 9, 25, ?

**A** 48

**B** 49

**C** 52

**D** 56

**Answer:** B

**Explanation:**

This is a sequence of squares of natural numbers and the numbers are having a difference in AP. Hence 1,2,3,5,7... Hence the next number is 49.

61. ACD, EGI, JLM, ?

**A** MNO

**B** NOP

**C** NPR

**D** None of these

**Answer:** C

62.  $\frac{4}{9}, \frac{9}{20}, (?), \frac{39}{86}$

**A**  $\frac{17}{40}$

**B**  $\frac{19}{42}$

**C**  $\frac{20}{45}$

**D**  $\frac{29}{53}$

**Answer:** B

**Explanation:**

As we can clearly observe in the numerator, the numerator of the previous term is multiplied by 2 and 1 is added. So numerator will be  $9(2)+1=19$

Similarly, denominator of the previous term is multiplied by 2 and then 2 is added. So  $20(2)+2=42$

Hence the fraction will be 19/42

63. Q1F, S2E, U6D, W21C, ?

**A** Y66B

**B** Y44B

**C** Y88B

**D** Z88B

**Answer: C**

64. 2Z5, 7Y7, 14X9, 23W11, 34V13, ?

**A** 27U24

**B** 47U15

**C** 45U15

**D** 47V14

**Answer: B**

#### Instructions [65 - 66 ]

Given below are pairs of events 'A' and 'B'. You have to read both the events 'A' and 'B' to decide their nature of relationship. You have to assume that the information given in 'A' and 'B' is true and you will not assume anything beyond the given information in deciding your answer. Give your answer as

65. **Event A: The national selectors have decided to retain the same 14 players for the third and final test series against New Zealand.**

**Event B: India has won the second test against New Zealand.**

**A** If 'A' is the effect and 'B' is its immediate and principal cause.

**B** If 'A' is the immediate and principal cause and 'B' is its effect.

**C** If 'A' is an effect but 'B' is not its immediate and principal cause.

**D** If 'B' is an effect but 'A' is not its immediate and principal cause.

**Answer: A**

#### Explanation:

As we can clearly see, that New Zealand selection committee won the series hence players have been

retained. So A is the effect and B is the immediate and principal cause

66. **Event A : Since Rani's own child had died at birth, she was desperate for another.**  
**Event B : Rani had quietly kidnapped the child, less than two days old, and shipped it out of the hospital.**

- A** If 'A' is the effect and 'B' is its immediate and principal cause.
- B** If 'A' is the immediate and principal cause and 'B' is its effect.
- C** If 'A' is an effect but 'B' is not its immediate and principal cause.
- D** If 'B' is an effect but 'A' is not its immediate and principal cause.

**Answer: B**

**Explanation:**

As we can clearly see, that Rani had kidnapped the child because she was desperate for another child. Hence B is the effect and A is the principal cause.

67. **Renu is elder than Anita. Rocky is younger than Anita. Sohan is elder than Renu. Who is the eldest in the group?**

- A** Renu
- B** Anita
- C** Sohan
- D** Rocky

**Answer: C**

**Explanation:**

From the first two statements we get Rocky < Anita < Renu. From the third statement we get, Sohan is elder than Renu. Hence Sohan is the eldest in the group

68. **Among the six cities – P, Q, R, S, T and U – P is not a hill station; Q and T are historical places; S is not an industrial city; P and S are not historical cities; P and Q are not similar kinds of cities. Which of two cities are historical places?**

- A** P and S
- B** R and S
- C** P and R

**D** Q and U

**Answer: D**

69. **Mr. Brijesh : A public sector company 'ABC' was privatised 3 years ago. It has increased profitability since then. This is a clear indication that industries will fare better in the private sector than in the public sector.**

**Mr. Sinha : That's wrong. Closer perusal of ABC's balance sheets shows that it has been profitable since the appointment of a professional managing director 3 years ago, while it was still in the public sector.**

**Which best describes the weakness in Mr. Brijesh's judgement which Mr. Sinha is using?**

- A** Brijesh's evidence is of a single company
- B** Professional management whether in a private or public sector company can earn more profits
- C** Profitability of ABC may be temporary
- D** No examples of profit making private sector companies was cited by him

**Answer: B**

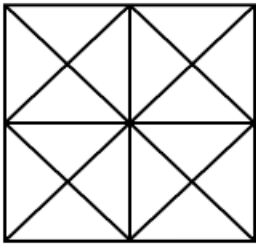
70. **Informed people generally assimilate information from several divergent sources before coming to an opinion. However, most popular news organisations view foreign affairs solely through the eyes of our State Department. In reporting the political crisis in foreign country B, the news organisations must endeavour to find out alternative sources of information.**

**Which of the following inferences can be drawn from the argument above?**

- A** To the degree that a news source gives an account of another country that mirrors that of our State Department, that reporting is suspect.
- B** To protect their integrity, news media should avoid the influence of State Department releases in their coverage of foreign affairs.
- C** The alternative sources of information mentioned in the passage might not share the same views as the State Department.
- D** A report cannot be seen as influenced by the State Department if it accurately depicts the events in a foreign country.

**Answer: C**

71. How many squares are there in the given figure?



- A** 6
- B** 8
- C** 16
- D** 10

**Answer:** D

72. A light bulb company produces 2000 light bulbs per week. The manager wants to ensure that standards of quality remain constant from week to week. The manager therefore claims that out of 2000 light bulbs produced per week, 500 light bulbs are rejected. Of the following, the best criticism of the manager's plan is that the plan assumes that

- A** Light bulb manufacturers cannot accept all light bulbs that are produced.
- B** Each light bulb reviewed is worthy of being reviewed.
- C** It is difficult to judge the quality of a light bulb.
- D** The 1,500 light bulbs that are accepted will be of the same quality from week to week.

**Answer:** D

73. Animesh walked 30 metres towards West, turned to his right and walked 20 metres. He then turned to his left and walked 10 metres, then turned to his left and walked 40 metres. He turned to his left and walked 5 metres. He again turned to his left and continued walking. In which direction is Animesh walking now?

- A** North-East
- B** North
- C** South-East
- D** West

**Answer:** B



74. **A greater number of fresh vegetables is sold in Kanpur than in Lucknow. Therefore, the people in Kanpur have better nutritional habits than those in Lucknow. Each of the following, if true, weakens the conclusions above, except**
- A** Kanpur has more people living in it than Lucknow.
  - B** Most of the people in Lucknow work in Kanpur and buy their vegetables there.
  - C** The per capita consumption of the junk food in Kanpur is three times that of Lucknow.
  - D** The average price per pound of the vegetables in Lucknow is lower than the average price per pound of vegetables in Kanpur.

**Answer: C**

75. **Traffic safety experts predict that the installation of newly designed seat belts in all cars in India would reduce the average number of fatalities per traffic accident by 30%. In order to save lives, the Department of Transport (DOT) is considering requiring automobile manufacturers to install belts of this design in all cars produced after 2005.**

**Which of the following, if true, represents the strongest challenge to the DOT's proposal?**

- A** Belts of the new design are more given to being inadvertently triggered, an occurrence that can sometimes result in fatal traffic accidents.
- B** The DOT is planning to require automobile manufacturers to produce these belts according to very strict specifications.
- C** After installing belts in new cars, automobile manufacturers will experience an increase in sales.
- D** The proposed belts installation program will adversely affect the resale of cars manufactured prior to 2005.

**Answer: D**

76. **A decade after a logging operation in India began cutting down trees in a territory that served as a sanctuary for Bengal tigers, the incidence of tigers attacking humans in nearby villages has increased by 300%. Since the logging operation has reduced the number of acres of woodland per tiger on an average from 16 acres to approximately 12 acres, the scientists have theorised that tigers must need a minimum number of acres of woodland in order to remain content.**

**Which of the following statements, if true, would most strengthen the scientists' hypothesis?**

- A** In other wildlife areas in India where the number of acres of woodland per tiger remains at least 15 acres, there has been no increase in the number of tiger attacks on humans.

- B** Before the logging operation began, there were many less humans living in the area.
- C** Other species of wild animals have begun competing with the Bengal tigers for the dwindling food supply.
- D** The Bengal tiger has become completely extinct in other areas of Asia.

**Answer: A**

77. In a certain code language, if A is written as C, B as D, C as E and so on up to Z, then how will PECULIAR be written in that code?

- A** RGEXNKCT
- B** RGEWNBKT
- C** RGEWNBCT
- D** RGEWKNCS

**Answer: C**

**Explanation:**

Each letter is being replaced by a letter that is two places ahead.

$P + 2 = R$

$E + 2 = G$

$C + 2 = E$

$U + 2 = W$

$L + 2 = N$

$I + 2 = K$

$A + 2 = C$

$R + 2 = T$

∴ PECULIAR will be coded as RGEWNBCT in the code language.

Hence, the correct answer is Option C

78. A company recently registered a big jump in clothing sales after hiring a copywriter and a graphic artist to give its clothing catalogue a magazine-like format designed to appeal to a more upscale clientele. The company is now planning to launch a house wares catalogue using the same concept. The company's plan assumes that

- A** Other housewares catalogues with magazine-like formats do not already exist.
- B** An upscale clientele would be interested in a housewares catalogue.

- C** The same copywriter and graphic artist could be employed for both the clothing and the housewares catalogues.
- D** A magazine-like format requires a copywriter and a graphic artist.

**Answer: C**

79. If TV is called Radio', 'Radio is called Aeroplane', 'Aeroplane is called Helicopter', 'Helicopter is called Bus', 'Bus is called Bike', 'Bike is called Water', 'Water is called Frog', 'Frog is called Tomato', 'Tomato is called Furniture' and 'Furniture is called Cigarette', then what is Tomato sauce made up of?

- A** Water
- B** Furniture
- C** Frog
- D** None of these

**Answer: B**

**Explanation:**

We know that tomato sauce is made up of tomato

Since tomato is called furniture, Tomato sauce is made up of furniture.

Hence B is the answer

80. The Election Commission has revised upwards the ceiling of total expenditure on all counts for Lok Sabha candidates to Rs. x lakh.  
Which of the following, if true, will make the ceiling an effective measure for a free and fair election?

- A** Strict implementation of the above law
- B** Maintaining law and order for a free and fair poll
- C** Maintaining present price level at the time of the next elections
- D** Submission of the accounts in time for all election expenses of the candidate to the Election Commission

**Answer: D**

## Language Comprehension

**Instructions [81 - 85 ]**

Read the following passages carefully to answer the questions.

**Passage I :**

One of the basic principles of people management for most of the 20th century was to narrow an

individual's task down to a small, heavily monitored, transparently cost-effective unit of work. This was particularly the case in many areas of manufacturing, where it was felt to be a necessary route to greater competitiveness. It left the individual with little chance to show any initiative. Today, that tenet is being turned largely on its head. Much more is expected from employees; their value to a company's well-being is increasingly acknowledged, even if not necessarily properly recognised. This transition has been accompanied by the emergence of 'human resource management', a term not universally acknowledged as representing much more than 'personnel management', but one which does signify a broader ambit than in the past. Just how much broader is discussed here, along with the widely differing attitudes of trade unions to human resource management and the issues that management must confront. Also examined are the issues that have been preoccupying human resource managers themselves. An example is the rapid emergence of new technology, which puts pressures on workers that cannot always be easily resolved. It is on the nature of good management practice that nothing, in isolation, provides the answer to every prayer. As John Grapper relates, British Airways, which lays claim to being the world's favourite airline, has embraced human resource management to what is generally considered to be good effect. It sees its employees as frontline troops in the competitive battle with other airlines. Its overall success is acknowledged; witness its ability to produce profits while rivals notch up huge losses. Grapper traces the pressure to re-think heavily monitored, narrowly defined work patterns as having come from Japan,

where the team approach, with decisions made by the consensus, is acknowledged to be a potent competitive weapon. Much of the shift is due to the fact that traditionally structured principles are incompatible with rapid technological change. This is especially so in service industries, where labour accounts for a large majority of total costs, and where employees can beat the forefront of enhancing standards of service. The mixed attitudes of unions to HRM emerge against a background of distrust. Inevitably, if responsibility is pushed further down the organisation, with established lines of authority being eroded, the union's traditional role is called into question. This suspicion is exemplified by a national officer of the Transport and General Workers' Union, who also accuses employers of often having as their real motivation, a desire to weaken collective strength. An academic's view is that HRM sits uncomfortably with industrial relations, since among other things, managers will endeavour to bypass unions achieve their ends. But not all unions are opposed to HRM, one particularly perceptive view being that it is inevitably an acknowledgement by management that workers should be more involved in decision making. A rider to this is that it brings managers under greater pressure to deliver and opens them to accusations of merely playing lip-service to the concept if they prove unhappy about being challenged. A further view is that HRM in the United Kingdom is a pale shadow of the regime that exist in Continental Europe, since the 'power' offered to workers is rather illusory and allows little scope for feedback from the workers to the upper echelons of management. This argument could well be supported by the attitudes which are reported in Christopher Lorenz's article about whether or not a value can be put on human resources and if, indeed, management really wishes to do so. Lorenz points to the growing number of chief executives who are at least paying attention to concepts which enhance the status of employees. But the question is whether this has any more substance than is revealed by the perfunctory acknowledgement in so many company annual reports of how valuable employees are to the organisation. One of the inevitable outcomes of 'empowerment' of employees is that they will make mistakes and that they should be left (for help) to learn by them. Yet this prospect help make some management's draw back from delegating real power of decision further down the line and thus from taking HRM to its proper conclusion. In a world of rapid technological advance, human resources play a crucial role—but not just in ensuring that the latest piece of technology performs. They are also a barometer of what is achievable and what is not, as Michael Dixon illustrates. What is particularly clear is that employees' reactions to new technology must be read carefully if they are not to be misinterpreted. For, however impressive any technology might be, some of its technical possibilities may have to be sacrificed in order to match what employees are happy—or can be persuaded

—to work with. Even in companies where HRM becomes very much the chief executive's remit, much of the responsibility for ensuring that employees' views are understood by management still falls to the human resource manager. Many managers still feel vulnerable in the organisational hierarchy. However, Simon Holberton suggests that while they know what their role should be, many human resource managers find themselves insufficiently informed by their companies to design programmes to meet manager's demands. Significantly, training is at the top of the list of their priorities. And while the economic climate has changed considerably for the worse with budgets slashed or put on hold, training is still widely perceived to be one of the most pressing requirements if a wide swathe of companies is not to be left unprepared to take advantage of an economic upturn.

**81. The author would agree with which of the following ?**

- A** The individual's value in any organisation is today properly reorganised.
- B** The individual's value in any organisation was always recognised.
- C** The individual's value is not recognised even today in any organisation.
- D** The individual is expected to do much less today than what he used to do earlier.

**Answer: A**

**82. The success of British Airways can be attributed to**

- A** Its adaptation of human resource management principles.
- B** Its superior service and timely running offlights.
- C** Its consideration that its employees are combatants in a battle, thus giving them more responsibility.
- D** Both (1) and (3).

**Answer: D**

**83. One of the salient features of the Japanese work pattern is that**

- A** All the Japanese regard work as worship.
- B** The decisions are usually taken by the top management, thus leading to success.
- C** The belief in teamwork and taking decisions by consensus.
- D** The respect for elders and their style of working.

**Answer: C**

**84. The trade unions oppose human resource management policies because**

- A** If workers become more responsible, the traditional role of unions is jeopardised.
- B** It is the tendency of the unions to oppose anything new.
- C** It will lead to greater interference by the management in union activity.
- D** None of these.

**Answer: C**

**85. Why do some managements not allow seeping down of responsibility?**

- A** They want to take all the decisions themselves.
- B** Employees may make mistakes and hence giving them responsibility would not be beneficial.
- C** They have a basic attitude problem.
- D** Both (1) and (3).

**Answer: B**

### **Instructions [86 - 90 ]**

Read the following passages carefully to answer these questions given at the end of each passage:

#### **Passage II :**

Definitions of 'culture' are contested. In anthropological usage, the word refers to a system of shared meanings through which collective existence becomes possible. However, as many recent critiques of this position point out, this sense of culture gives no place to the idea of judgement, and hence to the relations of power by which the dominance of ideas and tastes is established. As Said says about Matthew Arnold's view of culture:

"What is at stake in society is not merely the cultivation of individuals, or the development of a class of finely tuned sensibilities, or the renaissance of interests in the classics, but rather the assertively achieved and won hegemony of an identifiable set of ideas, which Arnold honorifically calls, culture, over all other ideas in society."

The implications of Arnold's view of culture are profound; they lead us towards a position in which culture must be seen in terms of that which it eliminates as much as that which it establishes. Said argues that when culture is consecrated by the state, it becomes a system of discriminations and evaluations through which a series of exclusions can be legislated from above. By the enactment of such legislation, the state comes to be the primary giver of values. Anarchy, disorder, irrationality, inferiority, bad taste and immorality are, in this way, defined and then located outside culture and civilisation by the state and its institutions. This exclusion of alterity is an important device by which the hegemony of the state is established; either certain 'others' are defined as being outside culture, as are 'mad' people; or they are domesticated, as with penal servitude—Foucault's monumental studies on the asylum and the prison demonstrate this.

It is this context which we must understand in order to fully appreciate the challenge posed by the

community to the hegemony of the state, especially to the notion that the state is the sole giver of values. At the same time, the danger is that we may in the process be tempted to valorise the community as somehow representing a more organic mode, and therefore a more authentic method of organising culture. Many scholars feel that culture is more organically related to the traditions of groups, whereas traditions are falsely invented by the hands of state. The issues are by no means as simple, for culture and tradition are not instituted in society once and for ever, but are subject to the constant change and flux which are an essential feature of every society. Indeed, the very attempt to freeze and fix cultural traditions may be inimical to their survival. Finally, in the contests between state, communities and collectivities of different kinds on one hand and the individual on the other, we can see the double life of culture: its potential to give radical recognition to the humanity of its subjects as well as its potential to keep the individual within such tightly defined bounds that the capacity to experiment with selfhood—which is also a mark of humanity—may be jeopardised.

So, we arrive at this double definition of culture. By this I mean that the word 'culture' refers to both a system of shared meanings which defines the individual's collective life, as well as a system for the formulation of judgements which are used to exclude alterities, and which thus keep the individual strictly within the bounds defined by the society. It is in view of this that the question of cultural rights seems to me to be placed squarely within the question of passions rather than interests. It is time now to define passion. After the classical work of Hirschman on political passions, it was usual to think of passions as obstructions in the path of reason. Passions had to be overcome for enlightened interest to emerge. This view of passions is extremely limited. Indeed, certain kinds of revelations, including the recognition of oneself as human, become possible only through passion. If the self is constituted only through the Other—so that desire, cognition, memory and imagination become possible through the play of passion—then the revelatory role of passion must be acknowledged not only in the life of the individual but also in the life of the collective. Passion then must play a role in politics.

As we have seen, the demand for cultural rights at this historical moment is in a context, where cultural symbols have been appropriated by the state, which tries to establish a monopoly over ethical pronouncements. The state is thus experienced as a threat by smaller units, who feel that their ways of life are penetrated, if not engulfed, by this larger unit. The situation is quite the opposite of the relation between the part and the whole in hierarchical systems, a relation seen as the characteristic mark of traditional politics in South Asia. In a hierarchical system, differences between constitutional units were essential for the 'whole' to be constituted.

In other words, small units came to be defined by being bearers of special marks in a hierarchical entity. And although by definition they could not be equal in such a system, the very logic of hierarchy assured that they could not be simply engulfed into the higher totality. This was both a source of their oppression as well as a guarantee of their acceptance (though not a radical acceptance) of their place in the world. My argument is not an appeal for a return to hierarchy as a principle of organisation. Rather, it is an effort to locate the special nature of the threat which smaller groups feel.

#### 86. Culture refers to the

- A** Shared meanings and collective existence
- B** Idea of judgement
- C** Relations of power

**D** All of the above

**Answer: D**

87. **Culture is established through**

**A** Achievement of hegemony of one identifiable set of ideas over other ideas

**B** Consecration by the state

**C** Institutionalisation of a system of discriminations and evaluations

**D** Exclusion of alterity

**Answer: A**

88. **Which of the following is true?**

**A** Passion contributes to the life of the collective

**B** Passion contributes to the life of the collective but only after playing a role in the life of the individual

**C** Passion's contribution to the life of the collective can be appreciated only if a broader view is adopted

**D** Passion's contribution to culture can be enhanced if it is not allowed to obstruct the path of reason

**Answer: B**

89. **Achieving selfhood involves**

**A** Balancing one's own desires with the boundaries of the state

**B** Jeopardising humanity

**C** Leading a double life

**D** All of the above

**Answer: A**

90. **The role of the state is to**

**A** Establish a monopoly over ethical pronouncements

**B** Appropriately cultural symbols

**C** Become the primary giver of the values



**D** All of the above

**Answer: C**

**Instructions [91 - 94 ]**

For the following verbal analogies pick the pair that exhibits the most similar relationship to the given analogy:

91. **Autumn; Wither**

**A** Fall; Digress

**B** Winter; Retreat

**C** Spring; Flower

**D** Season; Change

**Answer: C**

92. **Augur; Future**

**A** Knigh; Medieval

**B** Poet;  
Century

**C** Vanguard; Pack

**D** Historian; Past

**Answer: D**

93. **Stately; Demeanour**

**A** Ascetic; Deportment

**B** Narrow; Vessel

**C** Fertile; Nature

**D** Sober; Mien

**Answer: D**

94. **Rash; Stoic**

- A** Articulate; Orator
- B** Dubious; Scoundrel
- C** Dolorous; Spouse
- D** Agnostic; Cleric

**Answer: D**

**Instructions [95 - 99 ]**

From the alternatives provided, choose the one that best fills the blank:

95. **They lament and express their despair ..... the way Gandhi has been forgotten in his own land.**

- A** Over
- B** Of
- C** In
- D** With

**Answer: A**

96. **The government ..... on this issue.**

- A** Is divided
- B** Are divided
- C** Is being divided
- D** Divided

**Answer: B**

97. **After having sought my help, .....**

- A** My friend left me all alone
- B** I was left all alone by my friend
- C** I was alone
- D** I asked her to leave me alone

**Answer: A**

98. **I have known her ..... the end of the World War II.**

- A** From
- B** Since
- C** During
- D** Towards

**Answer: B**

99. The landlady ..... since morning.

- A** Has gossiped
- B** Has been gossiping
- C** Gossiped
- D** Has gossiping

**Answer: B**

#### Instructions [100 - 104 ]

In each of these questions, you are given a sentence. A part of the sentence is underlined. This is followed by four ways of phrasing the underlined part. Choice (1) repeats the original; the other three are different. Select the version that best rephrases the underlined part:

00. Many employers now believe that the advancement in technology has improved the, environment for the workers who can now work up to 18 hours a day and still does not feel physically tired.

- A** Advancements in technology has improved the environment for the workers who can now work up to 18 hours a day and still does
- B** Advancement in technology have improved the environment for the workers who can now work up to 18 hours a day and still does
- C** Advancements in technologies have improved the environment for the workers who can now work up to 18 hours a day and still does
- D** Advancements in technology have improved the environment for the workers who can now work up to 18 hours a day and still do

**Answer: D**

01. It is difficult to diagnose malaria because its first symptoms are similar to any viral fever.

- A** Are similar to any viral fever.

- B** Are similar to those of any viral fever.
- C** Are similar to those of any other viral fever.
- D** Are similar to those of any viral fevers.

**Answer: B**

02. To create a new game means expending lot of sweat, and calls for all the members of the development team to play its role with aplomb throughout the long - drawn - out procedure before the game sees the light of the day.

- A** For all the members of the development team to play its role with aplomb throughout
- B** For all the members in the development team to play their role with aplomb throughout
- C** For all the members of the development team to play their roles with aplomb throughout
- D** All the members of the development team to play their roles with aplomb throughout

**Answer: C**

03. The state has at least twenty colleges of whom only six are officially recognised.

- A** Of whom only six are officially recognised.
- B** Of whom only six have been officially recognised.
- C** Of which only six have official recognition.
- D** Of which only six are officially recognised.

**Answer: D**

04. The all-pervasiveness of the Internet has led to a joke, that a few bored homosapiens left to themselves in a single room with a couple of computers for some days, would eventually produce something that would either make Shakespeare jealous or plain wild.

- A** Either make Shakespeare jealous or plain wild.
- B** Make either Shakespeare jealous or plain wild.
- C** Made Shakespeare either jealous or plain wild.
- D** Either make Shakespeare jealous or make him plain wild.

**Answer: B**

### **Instructions [105 - 108 ]**

Each of the sentences against these questions has two blanks, each blank indicating that something has

been omitted. Choose the set of words for each blank that best fits the meaning of the sentence as a whole:

05. The term 'rare earths' is in fact a , ..... for paradoxically, the rare-earth elements are in actuality ....., being present in low concentration in virtually all the minerals.

- A Truism — essential
- B Misnomer — ubiquitous
- C Disclaimer — ephemeral
- D Metaphor — figurative

**Answer: B**

06. According to the 12<sup>th</sup> century cosmologies, the natural philosopher must strive to ..... a state of detached objectivity in order to free his capacity for constructing useful hypothesis from the ..... of unquestioned assumptions and accepted opinions about nature.

- A Capture — contemplation
- B Achieve — tyranny
- C Imitate — discipline
- D Attain — confusion

**Answer: B**

07. The columnist was very gentle when he mentioned his friends but was bitter and ever ..... when he discussed people who ..... him.

- A Laconic — infuriated
- B Acerbic — irritated
- C Remorseful — encouraged
- D Militant — distressed

**Answer: D**

08. She conducted the interrogation not only with dispatch but with ....., being a person who is ..... in manner yet subtle in discrimination.

- A Elan — enthusiastic
- B Equanimity — abrupt
- C Finesse — expeditious

**D** Zeal — doctrinaire

**Answer:** A

**Instructions [109 - 112]**

In these questions, find out the part of the sentence that has an error. Choose 'D' if there is no error.

09. They cook meals, lay the table and wash up (A)/ clean the house (B)/ and mend the clothes (C)

**A** A

**B** B

**C** C

**D** D

**Answer:** C

10. He seemed distracted (A)/ thinking less about what he was doing tonight (B)/than what he would be doing on the morrow (C).

**A** A

**B** B

**C** C

**D** D

**Answer:** B

11. For an educated man of the time, virtually the only way to gain power and prestige (A)/ was studying the Confucian classics (B)/and work his way up the ladder (C)/as a scholar-official.

**A** A

**B** B

**C** C

**D** D

**Answer:** C

12. For several reasons (A)/social psychologists have been studying (B)/ the effects competition (C)/ on performance and productivity.

**A** A

**B** B

**C** C

**D** D

**Answer: D**

### **Instructions [113 - 116 ]**

Each of these questions consists of a word, given in CAPITALS, followed by four words. Choose the word that is most nearly the same in meaning to the word given in CAPITALS. Since some of the questions require you to distinguish the fine shades of meaning, be sure to consider all the choices before deciding which one is the best:

13. **DESULTORY**

**A** Organised

**B** Disorganised

**C** Drive

**D** Romantic

**Answer: B**

14. **SACCHARINE**

**A** Clumsy

**B** Carriage

**C** Syrupy

**D** Caustic

**Answer: C**

15. **TENACIOUS**

**A** Determined

**B** Peevish

**C** Brazen

**D** Impious

**Answer: A**

16. **CONJURER**

- A** Wicked
- B** Entertainer
- C** Jester
- D** Palpable

**Answer: B**

**Instructions [117 - 120 ]**

Each of these questions consists of a word, followed by four words. Choose the word that is most nearly opposite in meaning to the word given in question:

17. **RADICAL**

- A** Fashionable
- B** Diabolic
- C** Conservative
- D** Myopic

**Answer: C**

18. **FLAMBOYANT**

- A** Lateral
- B** Dull
- C** Maverick
- D** Antique

**Answer: B**

19. **TANTALISING**

- A** Toiling
- B** Seance
- C** Repulsive



**D** Seamy

**Answer: C**

20. **INEFFABLE**

**A** Describable

**B** Frivolous

**C** Eclectic

**D** Blasphemy

**Answer: A**

## Mathematical Skills

21. The average of 10 numbers is 40.2. Later it is found that two numbers have been wrongly added. The first is 18 greater than the actual number and the second number added is 13 instead of 31. Find the correct average.

**A** 40.2

**B** 40.4

**C** 40.6

**D** 40.8

**Answer: A**

**Explanation:**

To rectify the mistake, we need to do the operation on the total =  $(-18) + (-13 + 31) = 0$

∴ By adding zero, there will be no change in the sum of the numbers, thus the average will remain same = **40.2**

=> Ans - (A)

22. In a class of 50 students, 23 speak English, 15 speak Hindi and 18 speak Punjabi. 3 speak only English and Hindi, 6 speak only Hindi and Punjabi and 6 speak only English and Punjabi. If 9 can speak only English, then how many students speak all the three languages?

**A** 1

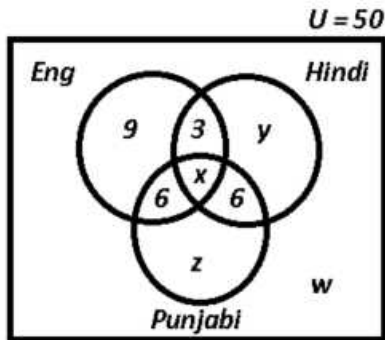
**B** 2

C 3

D 5

**Answer: D**

**Explanation:**



The total students who speak English are = 23

According to the venn diagram =  $9 + 3 + 6 + x = 23$

$$\Rightarrow x = 23 - 18 = 5$$

$\therefore$  **5 students** speak all the three languages.

$\Rightarrow$  Ans - (D)

23. **Two spinning machines A and B can together produce 3,00,000 metres of cloth in 10 hours. If machine B alone can produce the same amount of cloth in 15 hours, then how much cloth can machine A produce alone in 10 hours?**

A 2,00,000 metres

B 1,00,000 metres

C 1,50,000 metres

D 50,000 metres

**Answer: B**

**Explanation:**

$$\text{Efficiency of machine A alone} = \frac{1}{10} - \frac{1}{15}$$

$$= \frac{3-2}{30} = \frac{1}{30}$$

Thus, machine A alone produce 3,00,000 metres of cloth in 30 hours

$$\therefore \text{In 10 hours, machine A alone can produce} = \frac{300000}{30} \times 10 = 1,00,000 \text{ metres}$$

$\Rightarrow$  Ans - (B)

24. **37.85% and 92% alcoholic solutions are mixed to get 35 litres of an 89% alcoholic solution. How many litres of each solution are there in the new mixture?**

A 1.94 of the first and 33.06 of the second

- B** 20 of the first and 15 of the second
- C** 15 of the first and 20 of the second
- D** 12 of the first and 23 of the second

**Answer: A**

**Explanation:**

Let  $x$  and  $(35 - x)$  litres of each solution be mixed.

$$\Rightarrow 37.85\% \text{ of } x + 92\% \text{ of } (35 - x) = 89\% \text{ of } 35$$

$$\Rightarrow 37.85x + 92(35 - x) = 89 \times 35$$

$$\Rightarrow 37.85x - 92x = (89 \times 35) - (92 \times 35)$$

$$\Rightarrow 54.15x = 35 \times 3 = 105$$

$$\Rightarrow x = \frac{105}{54.15} \approx 1.94$$

$\therefore$  **1.94 litres** of the first and **33.06 litres** of the second

$\Rightarrow$  Ans - (A)

25. **A train leaves Station X at 5 a.m. and reaches Station Y at 9 a.m. Another train leaves Station Y at 7 a.m. and reaches Station X at 10.30 a.m. At what time do the two trains cross each other?**

- A** 7.36 a.m.
- B** 7.56 a.m.
- C** 8.36 a.m.
- D** 8.56 a.m.

**Answer: B**

**Explanation:**

Time taken by first train = 4 hours and time taken by second train = 3.5 hours

Since, distance travelled for both is same, ratio of time = 8 : 7

$\Rightarrow$  Ratio of speeds of both trains (speed is inversely proportional to time) = 7 : 8 respectively.

Let speed of first train be  $7x$  km/hr and speed of second train be  $8x$  km/hr and thus total distance between two stations =  $28x$  km

Thus, distance travelled by first train in first two hours (till second train starts) =  $14x$  km

$\Rightarrow$  Remaining distance between the trains at 7 am =  $14x$  km and relative speed coming in opposite directions =  $7x + 8x = 15x$  km/hr

$$\text{Time taken for them to meet each other} = \frac{14x}{15x} = \frac{14}{15} \times 60 = 56 \text{ minutes}$$

$\therefore$  The two trains will meet at **7:56 am**

=> Ans - (B)

26. What is the value of M and N respectively if M39048458N is divisible by 8 and 11, where M and N are single digit integers ?

A 7, 8

B 8, 6

C 6, 4

D 5, 4

**Answer: C**

**Explanation:**

Expression : M39048458N

For above number to be divided by 8, the last three digits, i.e. 58N must be divided by 8, =>  $N = 4$

Now, for the number M390484584 to be divided by 11, difference between sum of even digits and sum of odd digits must be divided by 11.

=> Sum of even digits =  $(3 + 5 + 8 + 0 + 4) = 20$

=> Sum of odd digits =  $(8 + 4 + 4 + 9 + M) = (25 + M)$

required difference =  $(25 + M) - 20 = 11$

=>  $M = 6$

$\therefore (M, N) = (6, 4)$

=> Ans - (C)

27. Peter got 30% of the maximum marks in an examination and failed by 10 marks. However, Paul who took the same examination got 40% of the total marks and got 15 marks more than the passing marks. What were the passing marks in the examination?

A 35

B 250

C 75

D 85

**Answer: D**

**Explanation:**

Let maximum marks in the examination be  $100x$  and passing marks be  $y$

Peter got 30% of the maximum marks, =>  $30x + 10 = y$  -----(i)

Similarly, for Paul =  $40x - 15 = y$  -----(ii)

Subtracting equation (i) from (ii), =>  $10x = 25$

$$\Rightarrow x = 2.5$$

Substituting it in equation (ii), we get : Passing marks =  $y = 85$

$\Rightarrow$  Ans - (D)

28. The marked price of a certain commodity is 30% higher than its cost price. A discount of 20% on the marked price makes the selling price Rs. 208. What is the net profit as a percent of cost price?

**A** 10%

**B** 4%

**C** 8%

**D** 12%

**Answer: B**

**Explanation:**

Let cost price of article be Rs.  $100x$

$\Rightarrow$  Marked price = Rs.  $130x$

After 20% discount, selling price =  $\frac{80}{100} \times 130x = 208$

$$\Rightarrow 4 \times 26x = 208$$

$$\Rightarrow x = 2 \text{ -----(i)}$$

Thus, cost price of article = Rs. 200

$$\therefore \text{Net profit as percent of cost price} = \frac{(SP-CP)}{CP} \times 100$$

$$= \frac{(208-200)}{200} \times 100 = 4\%$$

$\Rightarrow$  Ans - (B)

29. The perimeter of a rectangular field is 52 m. If the length of the field is 2 m more than thrice the breadth, then what is the breadth of the field?

**A** 6.5 m

**B** 6.25 m

**C** 13 m

**D** 6 m

**Answer: D**

**Explanation:**

Let the breadth of the field be  $x$  m and length =  $(3x + 2)$  m

$$\Rightarrow \text{Perimeter of rectangular field} = 2[(x) + (3x + 2)] = 52$$

$$\Rightarrow 4x + 2 = 26$$

$$\Rightarrow 4x = 26 - 2 = 24$$

$$\Rightarrow x = \frac{24}{4} = 6 \text{ m}$$

$\Rightarrow$  Ans - (D)

30. In a class-room, there are 6 students. We need to divide them into 3 pairs for the purpose of assigning homework. In how many ways can we make such pairs?

**A** 5

**B** 6

**C** 15

**D** 24

**Answer: C**

**Explanation:**

To select first pair, we need to choose 2 students out of 6, this can be done in  $C_2^6$  ways

Similarly, for the next 2 pairs =  $C_2^4$  and  $C_2^2$  ways

Now, to eliminate repetition, required number of ways =  $\frac{C_2^6 \times C_2^4 \times C_2^2}{3!}$

$$= \frac{15 \times 6 \times 1}{6} = 15$$

$\Rightarrow$  Ans - (C)

31. Train A travelling at 60km/hr leaves Mumbai for Delhi at 6 p.m. Train B travelling at 90 km/hr also leaves Mumbai for Delhi at 9 p.m. Train C leaves Delhi for Mumbai at 9 p.m. If all the three trains meet at the some time between Mumbai and Delhi, then what is the speed of Train C if the distance between Delhi and Mumbai is 1260 km?

**A** 60 km/hr

**B** 90 km/hr

**C** 120 km/hr

**D** 135 km/hr

**Answer: C**

**Explanation:**

Distance travelled by train A in 3 hours (till 9 p.m.) travelling at 60 km/hr =  $60 \times 3 = 180 \text{ km}$

Relative speed of Train A and B travelling in same direction =  $90 - 60 = 30 \text{ km/hr}$

Now, time when train A and train B will meet (Train C will also meet at this point, given) =  $\frac{180}{30} = 6$  hours  
 Thus, they will meet at 3 a.m. at a distance of  $(90 \times 6) = 540$  km from Mumbai =  $1260 - 540 = 720$  km from Delhi.

$\therefore$  Speed of train C =  $\frac{720}{6} = 120$  km/hr

=> Ans - (C)

32. A boat, while going down-stream in a river covered a distance of 50 miles at an average speed of 60 miles per hour. While returning, because of the water resistance, it took one hour fifteen minutes to cover the same distance. What was the average speed during the whole journey?

**A** 40 mph

**B** 48 mph

**C** 50 mph

**D** 55 mph

**Answer: B**

**Explanation:**

Time taken by boat to go downstream =  $\frac{50}{60} = \frac{5}{6}$  hours

Time taken for upstream distance =  $1 + \frac{1}{4} = \frac{5}{4}$  hours

Total time =  $\frac{5}{6} + \frac{5}{4} = \frac{25}{12}$  hours and total distance covered =  $50 + 50 = 100$  miles

$\therefore$  Average speed = total distance/total time

=  $\frac{100}{\frac{25}{12}} = 48$  mph

=> Ans - (B)

33. What is the third term in a sequence of numbers that leave remainders of 1, 2 and 3 when divided by 2, 3 and 4 respectively?

**A** 11

**B** 17

**C** 19

**D** 35

**Answer: D**

**Explanation:**

L.C.M. (2,3,4) = 12

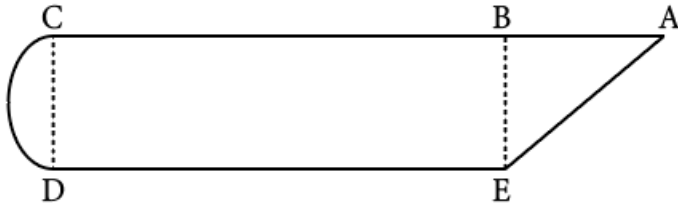
Number of the form that leave remainders of 1, 2 and 3 when divided by 2, 3 and 4 respectively =  $12x - 1$

$\therefore (2 - 1) = (3 - 2) = (4 - 3) = 1$ , where  $x$  is a natural number

Thus, the third number =  $12(3) - 1 = 35$

=> Ans - (D)

34. In a special racing event, the person who enclosed the maximum area would be the winner and would get Rs 100 for every square meter of area covered by him/her. Johnson, who successfully completed the race and was the eventual winner, enclosed the area shown in figure below. What is the prize money won? (Note: The arc from C to D makes a complete semi-circle).



AB = 3 m, BC = 10 m, CD = BE = 2 m

- A Rs 2914
- B Rs 2457
- C Rs 2614
- D Rs 2500

**Answer: B**

**Explanation:**

Total area of figure = ar(semi circle) + ar(rectangle BCDE) + ar(triangle ABE)

$$= \frac{\pi}{2}(r)^2 + (BC \times CD) + \left(\frac{1}{2} \times AB \times BE\right)$$

$$= 1.57 \times (1)^2 + (10 \times 2) + \left(\frac{1}{2} \times 3 \times 2\right)$$

$$= 1.57 + 20 + 3 = 24.57 m^2$$

$$\therefore \text{Total amount won } 100 \times 24.57 = \text{Rs. } 2457$$

=> Ans - (B)

35. If  $2^{2x-1} + 4^x = 3^{x-\frac{1}{2}} + 3^{x+\frac{1}{2}}$ , then x equals

- A  $\frac{1}{2}$
- B  $\frac{2}{3}$
- C 1
- D  $\frac{3}{2}$

**Answer: D**

**Explanation:**

$$\text{Expression : } 2^{2x-1} + 4^x = 3^{x-\frac{1}{2}} + 3^{x+\frac{1}{2}}$$



$$\Rightarrow \frac{2^{2x}}{2} + 2^{2x} = \frac{3^x}{\sqrt{3}} + (3^x \times \sqrt{3})$$

$$\Rightarrow 2^{2x} \left( \frac{1}{2} + 1 \right) = 3^x \left( \frac{1}{\sqrt{3}} + \sqrt{3} \right)$$

$$\Rightarrow 2^{2x} \times \frac{3}{2} = 3^x \times \frac{4}{\sqrt{3}}$$

$$\Rightarrow 2^{2x-1} \times 3^1 = 3^{x-\frac{1}{2}} \times 2^2$$

Now, comparing powers of (any one of) 2 or 3, we get :  $x = \frac{3}{2}$

$\Rightarrow$  Ans - (D)

36. A and B can finish a job in 10 days while B and C can do it in 18 days. A started the job, worked for 5 days, then B worked for 10 days and the remaining job was finished by C in 15 days. In how many days could C alone have finished the whole job?

**A** 30

**B** 15

**C** 45

**D** 24

**Answer: C**

**Explanation:**

Let total work to be done { L.C.M. (10,18) } = 90 units

Let efficiency of A, B and C be  $x, y, z$  respectively.

A and B can finish a job in 10 days,  $\Rightarrow x + y = \frac{90}{10} = 9$  -----(i)

Similarly,  $y + z = 5$  -----(ii)

Adding equations (i) and (ii),  $\Rightarrow x + 2y + z = 14$  -----(iii)

According to ques, A worked for 5 days, B for 10 days and C for 15 days

$$\Rightarrow 5x + 10y + 15z = 90$$

$$\Rightarrow x + 2y + 3z = 18$$
 -----(iv)

Subtracting equation (iii) from (iv), we get :  $2z = 4$

$$\Rightarrow z = 2$$

$\therefore$  Time taken by C alone to finish the work =  $\frac{90}{2} = 45$  days

$\Rightarrow$  Ans - (C)

37. If  $8^x 2^y = 512$  and  $3^{3x+2y} = (3^2)^{(3*2)}$  then what is the value of  $x$  and  $y$ ?

**A**  $\begin{pmatrix} 1, \\ 3 \end{pmatrix}$

**B**  $\begin{pmatrix} 2, \\ 3 \end{pmatrix}$

**C**  $\begin{pmatrix} 2, \\ 4 \end{pmatrix}$

**D**  $\begin{pmatrix} 1, \\ 4 \end{pmatrix}$

**Answer: B**

**Explanation:**

Given :  $8^x 2^y = 512$

$\Rightarrow 2^{3x} \times 2^y = (2)^9$

$\Rightarrow 2^{3x+y} = (2)^9$

$\Rightarrow 3x + y = 9$  -----(i)

Also,  $3^{3x+2y} = (3^2)^{(3*2)}$

$\Rightarrow 3^{3x+2y} = (3)^{12}$

$\Rightarrow 3x + 2y = 12$  -----(ii)

Solving equations (i) and (ii), we get :  $x = 2$  and  $y = 3$

$\Rightarrow$  Ans - (B)

38. In his wardrobe, Timothy has 3 trousers. One of them is black, the second blue, and the third brown. In his wardrobe, he also has 4 shirts. One of them is black and the other 3 are white. He opens his wardrobe in the dark and picks out one shirt-trouser pair, without examining the colour. What is the likelihood that neither the shirt nor the trouser is black?

**A**  $\frac{1}{12}$

**B**  $\frac{1}{6}$

**C**  $\frac{1}{4}$

**D**  $\frac{1}{2}$

**Answer: D**

**Explanation:**

Probability that trouser is not black =  $1 - \frac{1}{3} = \frac{2}{3}$

Probability that shirt is not black =  $1 - \frac{1}{4} = \frac{3}{4}$

$\therefore$  Required probability =  $\frac{2}{3} \times \frac{3}{4} = \frac{1}{2}$

=> Ans - (D)

39. In a factory, producing parts for an automobile, the parts manufactured on the shop floor are required to go through three quality checks, each conducted after a specific part of the processing on the raw material is completed. Only parts that are not rejected at one stage are put through the subsequent stages of production and testing. If average rejection rates at these three testing machines during a month are 10%, 5% and 2% respectively, then what is the effective rejection rate for the whole plant?

- A 17%
- B 15.20%
- C 84.80%
- D 16.21%

**Answer: D**

**Explanation:**

Successive rejection rate are 10%, 5% and 2% respectively.

$$\begin{aligned}\text{Effective rejection rate after first two tests} &= 10 + 5 - \left( \frac{10 \times 5}{100} \right) \\ &= 15 - 0.5 = 14.5\%\end{aligned}$$

$$\begin{aligned}\text{Similarly, effective rejection rate after third test} &= 14.5 + 2 - \left( \frac{14.5 \times 2}{100} \right) \\ &= 16.5 - 0.29 = 16.21\%\end{aligned}$$

=> Ans - (D)

40. A country follows a progressive taxation system under which the income tax rate applicable varies for different slabs of income. Total tax is computed by calculating the tax for each slab and adding them up. The rates applicable are as follows:

Annual income slab (in Rs.)	Tax rate applicable
0 - 50,000	0%
50,001 - 60,000	10%
60,001 - 1,50,000	20%
> 1,50,000	30%

If my annual income is Rs. 1,70,000, then what is the tax payable by me?

- A Rs. 51,000
- B Rs. 17,000
- C Rs. 34,000
- D Rs. 25,000

**Answer: D**

**Explanation:**

Total tax payable on Rs. 1,70,000

$$= (50,000 \times 0\%) + (10,000 \times 10\%) + (90,000 \times 20\%) + (20,000 \times 30\%)$$

$$= 0 + 1,000 + 18,000 + 6,000$$

$$= \text{Rs. } 25,000$$

=> Ans - (D)

41. The length of a rectangular plot is increased by 25%. To keep its area unchanged, the width of the plot should be

- A** Kept unchanged
- B** Increased by 25%
- C** Increased by 20%
- D** Reduced by 20%

**Answer: D**

**Explanation:**

Let length of rectangular plot be 4 m and width be 10 m

$$\Rightarrow \text{Area} = lb = 40 \text{ m}^2$$

After length is increased by 25%, new length = 5 m

$$\Rightarrow \text{New width if area is same} = \frac{40}{5} = 8 \text{ m}$$

$$\therefore \text{Reduction in width} = \frac{(10-8)}{10} \times 100 = 20\%$$

=> Ans - (D)

42. A man invests Rs. 5000 for 3 years, at 5% p.a. compound interest reckoned yearly. Income tax at the rate of 20% on the interest earned is deducted at the end of each year. Find the amount at the end of the third year.

- A** Rs. 5624.32
- B** Rs. 5630.50
- C** Rs. 5788.125
- D** Rs. 5627.20

**Answer: A**

**Explanation:**

Rate of interest = 5% and income tax rate on interest = 20%

=> 80% of interest is added for next year principal

Now effective rate of interest = 80% of 5% = 4% Principal sum = Rs. 5000 and time = 3 years

∴ Amount under compound interest =  $P(1 + \frac{r}{100})^t$

$$= 5000 \times (1 + \frac{4}{100})^3$$

$$= 5000 \times \frac{26}{25} \times \frac{26}{25} \times \frac{26}{25}$$

$$= 17576 \times \frac{8}{25} = \text{Rs. } 5624.32$$

=> Ans - (A)

43. A sum of Rs 36.90 is made up of 180 coins which are either 10 paise coins or 25 paise coins. Determine the number of each type of coins.

**A** 126 of 10p coins and 54 of 25p coins

**B** 54 of 10p coins and 126 of 25p coins

**C** 90 of 10p coins and 90 of 25p coins

**D** None of the above

**Answer: B**

**Explanation:**

Let number of 10 paise coins be  $x$  and number of 25 paise coins be  $(180 - x)$

According to ques,

$$\Rightarrow \frac{1}{10} \times (x) + \frac{1}{4} \times (180 - x) = 36.90$$

$$\Rightarrow \frac{x}{10} - \frac{x}{4} + 45 = 36.90$$

$$\Rightarrow \frac{3x}{20} = 8.10$$

$$\Rightarrow x = 8.10 \times \frac{20}{3} = 54$$

∴ Number of 10 paise coins = **54** and number of 25 paise coins = **126**

=> Ans - (B)

44. A man has 1044 candles. After burning, he can make a new candle from 9 stubs left behind. Find the maximum number of candles that can be made.

**A** 116

**B** 120

**C** 130

**D** 140

**Answer: C**

**Explanation:**

1 candle is made from 9 stubs,  $\Rightarrow$  116 candles will be made from 1044 stubs

From 116 candles, 12 candles can be made with 8 stubs left.

Now total stubs left =  $12 + 8 = 20$ , out of which two candles can be made with two stubs left.

Thus, Maximum number of candles that can be made =  $(116 + 12 + 2) = 130$

(or) Number of candles made =  $\left(\frac{1044}{9^1}\right) + \left(\frac{1044}{9^2}\right) + \left(\frac{1044}{9^3}\right) \approx 130$

$\Rightarrow$  Ans - (C)

45. **Badri has 9 pairs of dark blue socks and 9 pairs of black socks. He keeps them all in the same bag. If he picks out three socks at random, then what is the probability that he will get a matching pair ?**

**A**  $\frac{{}^{2^9}C_2 \cdot {}^9C_1}{{}^{18}C_3}$

**B**  $\frac{{}^9C_2 \cdot {}^9C_1}{{}^{18}C_3}$

**C** 1

**D** None of these

**Answer: C**

**Explanation:**

Since, there are only two types of socks in the bag. So, if Badri pick up 3 socks then certainly two of them are of same type. Thus this is a certain event.

$\Rightarrow$  Required probability = 1

$\Rightarrow$  Ans - (C)

46. **A class photograph has to be taken. The front row consists of 6 girls who are sitting. 20 boys are standing behind. The two corner positions are reserved for the 2 tallest boys. In how many ways can the students be arranged?**

**A**  $18! \times 1440$

**B**  $6! \times 1440$

**C**  $18! \times 2! \times 1440$

**D** None of these

**Answer: A**

**Explanation:**

The two boys in corner can be arranged in =  $2!$  ways

Now, the remaining boys can be arranged in =  $18!$  ways

There are 6 girls who can be arranged in =  $6!$  ways

∴ Total number of ways in which all the students can be arranged

$$= 2! \times 18! \times 6!$$

$$= 18! \times 1440$$

=> Ans - (A)

47. The LCM of two numbers is 280 and their ratio is 7 : 8. The two numbers are

**A** 70, 80

**B** 42, 48

**C** 35, 40

**D** 28, 32

**Answer: C**

**Explanation:**

Let the two numbers be  $7x$  and  $8x$

$$\text{Now, L.C.M. } (7x, 8x) = 7 \times 8 \times x$$

According to ques,

$$\Rightarrow 56x = 280$$

$$\Rightarrow x = \frac{280}{56} = 5$$

∴ The two numbers are : **35, 40**

=> Ans - (C)

48. A certain number of people were supposed to complete a work in 24 days. The work, however, took 32 days, since 9 people were absent throughout. How many people were supposed to be working originally?

**A** 32

**B** 27

**C** 36

**D** 30

**Answer: C**

**Explanation:**

$$\text{Using } M_1D_1 = M_2D_2$$

Let  $x$  people were supposed to work initially.

$$\Rightarrow x \times 24 = (x - 9) \times 32$$

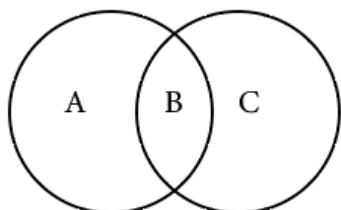
$$\Rightarrow 3x = 4(x - 9)$$

$$\Rightarrow 3x = 4x - 36$$

$$\Rightarrow x = 36$$

$\Rightarrow$  Ans - (C)

49. In the given diagram, two circles pass through each other's center. If the radius of each circle is 2, then what is the perimeter of the region marked B?



**A**  $\left(\frac{8}{3}\right)\pi$

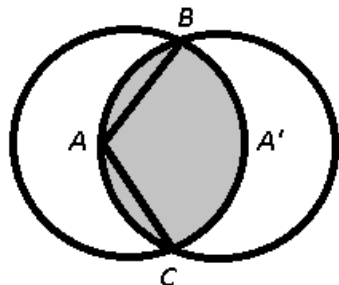
**B**  $\left(\frac{4}{5}\right)\pi$

**C**  $4\pi$

**D**  $\left(\frac{5}{3}\right)\pi$

**Answer:** A

**Explanation:**



Two circles with centres A and A' and having radius = 2 cm

$\angle BAC = 120^\circ$  [since ABA' forms a equilateral triangle] and length of an arc =  $\frac{\theta}{360^\circ} \times 2\pi r$

Perimeter of shaded portion =  $2 \times (\text{length of arc BC})$

$$= 2 \times \left(\frac{120^\circ}{360^\circ} \times 2\pi r\right)$$

$$= 2 \times \left(\frac{1}{3} \times 2\pi \times 2\right)$$

$$= 2 \times \frac{4\pi}{3} = \frac{8\pi}{3}$$

$\Rightarrow$  Ans - (A)

50. Cloth Makers Inc. has p spindles, each of which can produce q metres of cloth on an average in r minutes. If the spindles are made to run with no interruption, then how many hours will it take for 20,000 meters of cloth to be produced?

**A**  $20000 \frac{(pq)}{r}$



**B**  $20000 \frac{(rq)}{p}$

**C**  $\frac{(pr)}{pq}$

**D**  $20000 \frac{r}{60(pq)}$

**Answer: D**

**Explanation:**

Time taken to make  $(pq)$  metres of cloth =  $r$  min

=> Time taken to make 20,000 m of cloth =  $\frac{r}{pq} \times 20,000$  minutes

$\therefore$  Required time (in hour) =  $20,000 \times \frac{r}{60(pq)}$

=> Ans - (D)

51. If Dennis is  $\frac{1}{3^{rd}}$  the age of his father Keith now, and was  $\frac{1}{4^{th}}$  the age of his father 5 years ago, then how old will his father Keith be 5 years from now?

**A** 20 years

**B** 45 years

**C** 40 years

**D** 50 years

**Answer: D**

**Explanation:**

Let Keith's present age be  $3x$  years and Dennis's present age be  $x$  years

=> According to ques,

$$\Rightarrow (3x - 5) = 4 \times (x - 5)$$

$$\Rightarrow 3x - 5 = 4x - 20$$

$$\Rightarrow x = 15$$

$\therefore$  Keith's age after 5 years =  $3(15) + 5 = 50$  years

=> Ans - (D)

52. A mail-sorting clerk is given 4 envelopes addressed to different people and 4 letters. She has to carefully put the letters in the correct envelopes and then mail them. However, she carelessly puts any letter in any envelope, making sure that each envelope has precisely one of those 4 letters. What is the likelihood that all the letters are in the correct envelope?

**A**  $\frac{1}{24}$

**B**  $\frac{1}{12}$

**C**  $\frac{1}{6}$

**D**  $\frac{1}{4}$

**Answer: A**

53. The ages of the two persons differ by 20 years. If 5 years ago, the older one be 5 times as old as the younger one, then their present ages, in years, are

**A** 25, 5

**B** 30, 10

**C** 35, 15

**D** 50, 30

**Answer: B**

**Explanation:**

Let present ages of the two persons be  $x$  and  $(x - 20)$  years

According to ques,

$$\Rightarrow (x - 5) = 5 \times (x - 20 - 5)$$

$$\Rightarrow x - 5 = 5x - 125$$

$$\Rightarrow 4x = 120$$

$$\Rightarrow x = \frac{120}{4} = 30$$

$\therefore$  Their present ages = **30, 10** years

$\Rightarrow$  Ans - (B)

54. A person has deposited Rs. 13,200 in a bank which pays 14% interest. He withdraws the money and invests in Rs. 100 stock at Rs. 110 which pays a dividend of 15%. How much does he gain or lose?

**A** Loses Rs. 48

**B** Gains Rs. 48

**C** Loses Rs. 132

**D** Gains Rs. 132

**Answer: A**

**Explanation:**

Principal sum = Rs. 13,200 and rate of interest = 14%

$$\Rightarrow \text{Interest earned} = \frac{14}{100} \times 13200 = \text{Rs. } 1848$$

$$\text{Thus, number of shares purchased} = \frac{13200}{110} = 120$$

$$\Rightarrow \text{Income from stock} = (15\% \text{ of Rs. } 100) \times 120$$

$$= 15 \times 120 = \text{Rs. } 1800$$

$$\therefore \text{Loss} = 1848 - 1800 = \text{Rs. } 48$$

$\Rightarrow$  Ans - (A)

55. If a% of x is equal to b% of y, then c% of y is what % of x?

**A** c%

**B** ac/b%

**C** bc/a%

**D** abc%

**Answer: B**

**Explanation:**

Given : a% of x is equal to b% of y

$$\Rightarrow ax = by$$

$$\Rightarrow y = \frac{ax}{b}$$

Multiplying both sides with  $\left(\frac{c}{100}\right)$

$$\Rightarrow \frac{c}{100} \times y = \left(\frac{c}{100}\right) \times \left(\frac{ax}{b}\right)$$

$$\Rightarrow c\% \text{ of } y = \frac{x}{100} \times \frac{ac}{b}$$

$$\therefore c\% \text{ of } y \text{ is } \left(\frac{ac}{b}\right)\% \text{ of } x$$

$\Rightarrow$  Ans - (B)

56. The number of boys is more than the number of girls by 12% of the total strength of the class. The ratio of the number of boys to that of the girls is

**A** 11 : 14

**B** 14 : 11

**C** 25 : 28

**D** 28 : 25

**Answer: B**

**Explanation:**

Let total strength of class = 100

Let number of boys be  $x$  and number of girls be  $(100 - x)$

According to ques,

$$\Rightarrow x - (100 - x) = \frac{12}{100} \times 100$$

$$\Rightarrow 2x - 100 = 12$$

$$\Rightarrow x = \frac{112}{2} = 56$$

Thus, boys = 56 and girls = 44

$$\therefore \text{Required ratio} = \frac{56}{44} = 14 : 11$$

$\Rightarrow$  Ans - (B)

57. Ten points are marked on a straight line and eleven points are marked on another straight line. How many triangles can be constructed with vertices from among the above points?

**A** 495

**B** 550

**C** 1045

**D** 2475

**Answer:** C

**Explanation:**

A triangle can be formed by taking any two points of a straight line and third point on the second straight line

$$\Rightarrow \text{Number of ways} = ({}^C_2^{10} \times 11) + ({}^C_2^{11} \times 10)$$

$$= 495 + 550 = 1045$$

$\Rightarrow$  Ans - (C)

58. The sum of two numbers is 462 and their highest common factor is 22. What is the maximum number of pairs that satisfy these conditions?

**A** 1

**B** 3

**C** 2

**D** 6

**Answer:** D

**Explanation:**

Let numbers be  $22x$  and  $22y$ , where  $x$  and  $y$  are co-prime numbers.

$$\Rightarrow 22x + 22y = 462$$

$$\Rightarrow (x + y) = \frac{462}{22} = 21$$

Now, number of possible values of  $(x, y) = (1, 20)(2, 19)(4, 17)(5, 16)(8, 13)(10, 11)$

$\therefore$  There are **6** such pairs.

$\Rightarrow$  Ans - (D)

59. In a class, 40% of the boys is same as  $\frac{1}{2}$  of the girls and there are 20 girls. Total number of students in the class is

**A** 70

**B** 45

**C** 35

**D** 25

**Answer: B**

**Explanation:**

Number of girls = 20

Now, 40% of boys = 10

$$\Rightarrow 100\% \text{ boys} \equiv 10 \times \frac{100}{40} = 25$$

$$\therefore \text{Total students} = 20 + 25 = 45$$

$\Rightarrow$  Ans - (B)

60. A man bets on number 16 on a roulette wheel 14 times and loses each time. On the  $15^{th}$  spin, he does a quick calculation and finds out that the number 12 had appeared twice in the 14 spins and is therefore unable to decide whether to bet on 16 or 12 in the  $15^{th}$  spin. Which will give him the best chance and what are the odds of winning on the bet that he takes? (Roulette has numbers 1 to 36).

**A** 16 : 22 : 14

**B** 12 : 72 : 1

**C** 12 : 7 : 1

**D** Either : 35 : 1

**Answer: C**

## Indian & Global Development

61. Who has been appointed as Prime Minister of Sri Lanka?

- A** Lakshman Kadirgamar
- B** Mohinda Rajapakse
- C** Ranil Wickremesinghe
- D** None of these

**Answer: B**

62. The ad line 'Experience Yourself' is connected with the tourism of which state?

- A** Kerala
- B** Karnataka
- C** Andhra Pradesh
- D** Tamil Nadu

**Answer: D**

63. Budget is the

- A** Proposal of taxation
- B** Annual financial statement
- C** Appropriation bill
- D** None of these

**Answer: B**

64. Which is the best selling car name of all time? The model has undergone several redesigns in its history with 25 million vehicles sold in 142 countries?

- A** Toyota Corolla
- B** Skoda Octavia
- C** Hyundai Elantra
- D** Chevrolet Optra

**Answer: A**

65. An instrument for determining the amount of water vapours present in the atmosphere is known as

- A** Hygrometer
- B** Hydrometer
- C** Chronometer
- D** None of these

**Answer: A**

66. Which of the following States is called the 'Tiger State' of India?

- A** Assam
- B** Gujarat
- C** West Bengal
- D** M.P.

**Answer: C**

67. Which one of the following companies has notched the top slot as the largest software exporter?

- A** Wipro
- B** Infosys
- C** TCS
- D** Satyam Computers

**Answer: C**

68. How many teams took part in the Euro-2004 soccer tournament?

- A** 12
- B** 16
- C** 15
- D** 20

**Answer: B**

69. BPO (Business Process Outsourcing) is gaining ground due to

- A** Factor cost advantage

- B** Economy of scale
- C** Business risk mitigation
- D** All of these

**Answer: A**

70. **X-tra Mile Super Diesel has been launched by**

- A** Indian Oil
- B** Bharat Petroleum
- C** Hindustan Petroleum
- D** IBP

**Answer: A**

71. **The slogan 'With you-all the way' is related to which bank?**

- A** Indian Bank
- B** HSBC
- C** HDFC
- D** State Bank of India

**Answer: D**

72. **Recently, India signed the Hawk deal with which of the following nations?**

- A** China
- B** Britain
- C** Israel
- D** Russia

**Answer: B**

73. **Shovna Narayan is associated with which classical dance form of India?**

- A** Bharatnatyam



- B** Kathakali
- C** Kuchipudi
- D** Kathak

**Answer: D**

74. The ad line 'Connecting people' is linked with which company?

- A** Hutch
- B** Airtel
- C** Reliance Infocomm
- D** Nokia

**Answer: D**

75. Who was crowned the 2004 Pond's Femina Miss India-Universe?

- A** Sayali Bhagat
- B** Jyoti Brahmin
- C** Lakshmi Pundit
- D** Tanushree Dutta

**Answer: D**

76. The elite Fortune 500 list includes which Indian company/companies?

- A** Indian Oil
- B** HPCL
- C** Reliance Industries
- D** All of these

**Answer: D**

77. The threat of flooding of Rampur in Himachal Pradesh has been due to the rains in the catchment area of ..... river in Tibet.

- A** Sutlej
- B** Pareechu
- C** Chenab
- D** Beas

**Answer: B**

78. **North-South Road Corridor, which is being constructed under National Highways Development Project, connects**

- A** Jammu to Kanniyakumari
- B** Srinagar to Cochin
- C** Srinagar to Madurai
- D** Srinagar to Kanniyakumari

**Answer: D**

79. **Who is the youngest member of the 14<sup>th</sup> Lok Sabha?**

- A** Milind Deora
- B** Sachin Pilot
- C** Sandeep Dikshit
- D** Ajay Maken

**Answer: B**

80. **Which is not declared as a 'Navratan'?**

- A** ONGC
- B** MMTC
- C** Indian Oil Corporation
- D** BHEL

**Answer: B**

81. **Who has been recently appointed as the Deputy Chairman of the Planning Commission?**

- A** Shyam Saran
- B** Navin Chawla
- C** J. N. Dixit
- D** Montek Singh Ahluwalia

**Answer: D**

82. **Mohiniattam is a classical dance form of**

- A** Andhra Pradesh
- B** Tamil Nadu
- C** Karnataka
- D** Kerala

**Answer: D**

83. **Beighton Cup is awarded for which sport?**

- A** Hockey
- B** Cricket
- C** Golf
- D** Volleyball

**Answer: A**

84. **Who among the Following persons won the Best Actor award at the International Indian Film Academy (UFA) awards function in Singapore in May 2004?**

- A** Amitabh Bachchan
- B** Shahrukh Khan
- C** Akshay Kumar
- D** Hrithik Roshan

**Answer: D**

85. **World Population Day is observed on**

**A** 12 July

**B** 10 July

**C** 11 July

**D** 13 July

**Answer: C**

86. **Helsinki is the capital of**

**A** Egypt

**B** Cyprus

**C** Italy

**D** Finland

**Answer: D**

87. **The Ninth Five-Year Plan covered the period**

**A** 1997 - 2002

**B** 1998 - 2003

**C** 1996 - 2001

**D** 1999 - 2004

**Answer: A**

88. **Which vehicle is not a product of Maruti-Suzuki ?**

**A** Omni

**B** Versa

**C** Baleno

**D** Bolero

**Answer: D**

89. **Who is the man behind Hotmail ?**

- A** Azim Premji
- B** Vinod Khosla
- C** Rajiv Gupta
- D** Sabeer Bhatia

**Answer: D**

90. **The family car 'Tavera' has recently been introduced by**

- A** GM
- B** Toyota
- C** Ford
- D** Honda

**Answer: A**

91. **Cathay Pacific airlines belongs to**

- A** Russia
- B** Hong Kong
- C** Germany
- D** UK

**Answer: B**

92. **Subhash Chandra is associated with**

- A** Dr. Reddy's Labs
- B** Ashok Leyland
- C** Zee Telefilms
- D** SAIL

**Answer: C**

93. **Pedagogy is a science which deals with**

- A** Teaching

- B** Study of human mind
- C** Weather and climate
- D** Production of desired off springs

**Answer: A**

94. **Who is the first Indian batsman to score a triple century in Test Cricket?**

- A** V.V.S. Laxman
- B** Rahul Dravid
- C** Sachin Tendulkar
- D** Virender Sehwag

**Answer: D**

95. **In 1955, the Imperial Bank of India, a leading commercial bank of India of that time, was nationalised and renamed as**

- A** Central Bank of India
- B** Bank of India
- C** Indian Bank
- D** State Bank of India

**Answer: D**

96. **A sustained and appreciable increase in the price level over a considerable period of time is known as**

- A** Devaluation
- B** Depreciation
- C** Inflation
- D** Depression

**Answer: C**

97. **Where was the formal meeting of the World Trade Organisation (WTO) held in March 2004?**

- A** Geneva

- B** Delhi
- C** Mumbai
- D** Singapore

**Answer: A**

98. The term 'Chinaman' is associated with

- A** Hockey
- B** Billiards
- C** Golf
- D** Cricket

**Answer: D**

99. Pulitzer Prizes of the US are awarded for

- A** Music
- B** Films
- C** Print journalism
- D** None of these

**Answer: C**

200. Indian Naval Academy is located at

- A** Cochin
- B** Panaji
- C** Mumbai
- D** Thiruvananthapuram

**Answer: A**