

**SECTION - I**  
**MENTAL ABILITY AND LOGICAL REASONING**  
**SINGLE ANSWER TYPE QUESTIONS**

This section contains multiple choice questions. Each question has 4 choices (A), (B), (C) and (D), out of which ONLY ONE is correct. Each correct answer carries 4 marks. No negative marks. Zero marks if not attempted.

1. In a row of children facing North Samir is 17<sup>th</sup> from the left end of the row and second to the right of Jyothi who is fifteenth from the right end of the row. How many children are there in the row?  
(A) 30      (B) 29      (C) 31      (D) 34
2. How many such pairs of letters are there in the word EDUCATION, each of which has as many letters between them in the word as they have in the English alphabet?  
(A) None      (B) one      (C) two      (D) more than three
3. Directions (3-4): Each of the questions below consists of a question and two statements numbered I and II given below it. You have to decide whether the data provided in the statements are sufficient to answer the question. Read both the statements and-

**Given answer (A)**

if the data in Statement I alone are sufficient to answer the question, while the data in Statement II alone are not sufficient to answer the question.

**Given answer (B)**

if the data in Statement II alone are sufficient to answer the question, while the data in Statement I alone are not sufficient to answer the question.

**Given answer (C)**

if the data in statement I alone or in Statement II alone are sufficient to answer the question.

**Given answer (D)**

if the data in both the statements I and II together are not sufficient to answer the question.

3. who among G,H, I, J and K, each having a different height is the shortest?

I. I, who is taller than K is not the tallest.

II. K, who is not as tall as H, is not the shortest.

4. What does 'pe' mean in the code language ?

I. ' Lo Ne Pe' means ' they were Angry' and ' Ti Ne pe' means ' They Were Happy' in that code language

II. 'Ni Wa Se Pe' means 'They are coming here' in that code language.

5. How is Kalish related to Neela?

I. Reema, Neela's mother, is sister of Omkar, Kalish's father.

II. Sohan's aunt is sister of Neela and Sohan's brother is father of Kalish.

**Directions (6-10):** study the following arrangement carefully to answer these questions.

4 D # Q H I 3 L @ R E 6 1 M % F A 7 J P U B 5 8 \$ K 9 ©

6. How many such symbols are there in the above arrangement each of which is immediately preceded and also followed by a consonant ?

(A)None (B) one (C) two (D) three

7. Which element is third to right of fifteenth from the right end ?

(A)1 (B)M (C)6 (D) None of these

8. If all the symbols are dropped from the given arrangement, which element will be 9<sup>th</sup> from the right end ?

(A) A (B)7 (C) J (D)E

9. How many such numbers are there in the given arrangement each of which is immediately preceded by a vowel ?

(A) None (B) one (C) two (D) three

10. Four of the following five are alike in a certain way based on their position in the given arrangement and so from a group. Which is the one that does not belong to the group ?

(A) L@3 (B) I3H (C) A7F (D) \$8K

11. What will come next in the following series

a b a b c a b c d a b c d e a b c d e f a b c d

(A)g

(B) f

(C) e

(D) a

12. If A is substituted by 4, B by 3, C by 2, D by 4, E by 3, F by 2 and so on, then what will be total of the numerical values of the letters of the word SICK?

(A)11

(B) 12

(C) 9

(D)10

**Directions (13-14)**

P, Q, R, S, T and U are sitting along the circle facing the centre.

(i) P is immediate neighbour of Q who is second to the right of R

(ii) S is second to the left of T.

(iii) U is immediate neighbour of T.

13. Which of the following is correct?

(A) S is between U and R

(B) Q is between P and T

(C) P is between Q and R

(D) T is between U and Q

14. Which pair among the following has only one element sitting between its two elements in the given sitting arrangement?

(A) QU

(B) PR

(C) RT

(D) SU

15. Directions.

These question is based on the following six numbers.

382 473 568 728 847 629

If the second and third digits of each number are interchanged which number will be the third lowest?

(A) 629

(B)382

(C) 473

(D) 568

## SECTION - II

## SINGLE ANSWER TYPE QUESTIONS

This section contains 5 multiple choice questions. Each question has 4 choices (A), (B), (C) and (D), out of which ONLY ONE is correct. Each correct answer carries 4 marks. No negative marks. Zero marks if not attempted.

16. A number consists of 3 digits whose sum is 7. The digit at the units place is twice the digit at the ten's place. If 297 is added to the number, the digits of the number are reversed. Find the number.

- (A) 124 (B) 241 (C) 241 (D) 142

17. If a, b, c and d are 10<sup>th</sup>, 12<sup>th</sup>, 18<sup>th</sup> and 21<sup>st</sup> multiples of 3, then the least number, which when divided by a, b, c and d leaves 8 as remainder in each case, is

- (A) 3788 (B) 3778 (C) 3878 (D) 3988

18.  $\left[ \left( 15 \div \frac{5}{3} \right) + \left( \frac{16}{15} \div 4 \right) \right] \times \frac{45}{139}$  is added to 47. Then the value obtained is

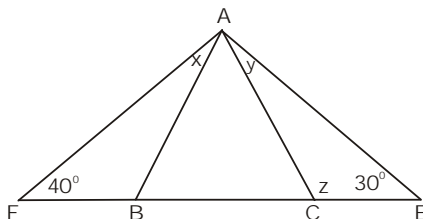
- (A) 100 (B) 101 (C) 102 (D) 104

19. Anil scored in Mathematics is  $\frac{5}{6}$  of mark scored in science.

The score in social is  $\frac{4}{5}$  of more scored in Mathematics. If the total marks is 225, then the marks scored in Mathematics is

- (A) 80 (B) 95 (C) 65 (D) 75

20. If  $\triangle ABC$  is an equilateral triangle, then the values of x, y and z are



- (A)  $x = 20^\circ, y = 30^\circ, z = 120^\circ$   
 (B)  $x = 30^\circ, y = 20^\circ, z = 120^\circ$   
 (C)  $x = 120^\circ, y = 30^\circ, z = 20^\circ$   
 (D)  $x = 120^\circ, y = 20^\circ, z = 30^\circ$

**SECTION - III**  
**MULTIPLE ANSWER QUESTIONS**

This section contains 5 multiple correct answer (s) type questions. Each question has 4 choices (A), (B), (C) and (D), out of which ONE OR MORE is/are correct. Each correct answer carries 4 marks. No negative marks. Zero marks if not attempted.

**21. 110001<sub>(2)</sub> in decimal system is**

- (A) 4 in units place and 9 in the ten's place  
 (B) 9 in units place and 4 in tens place  
 (C) twice the quarter of 100 minus one  
 (D) twice the quarter of 100 plus one.

**22. The H.C.F of two numbers is the square root of 441. If one of the numbers is 840 then the other number which is the consecutive multiple  $\sqrt{441}$  is**

- A) 819    B) 861    C) 821    D) 839

**23. If  $(4^x + 2^y)^2 - (4^x - 2^y)^2 = p$ , then  $\frac{p}{2^{2x+y}}$  is**

- A) 8    B) 2    C) 16    D) 4

**24. If  $49(a^2 - b^2) + 28(a - b)^2 = A$  is added to  $B = 16(a + b)^2 - 25(a^2 - b^2)$ , then factors of  $A + B - 44ab + 48b^2$  is**

- A)  $(a^2 + ab + b^2)$     B)  $(b^2 - ab - a^2)$   
 C) 68    D)  $(a^2 - ab + b^2)$

**25. If  $ap^2q^4r^3 - bp^3q^3r^2 - cp^4q^3r^5$  where  $a = 2^6, b = 4^2$  and  $c = 16^2$ , then its factors are**

- A)  $16p^2q^3r^2$     B)  $(4qr - p - 16p^2r^3)$   
 C)  $(4qr + p + 16p^2r^3)$     D)  $(49r + p - 16p^2r^3)$

## SECTION - IV

## INTEGER TYPE QUESTIONS

This section contains 5 questions. The answer to each question is a single digit integer ranging from 0 to 9. The correct digit below the question number in the OMR is to be bubbled. You will be awarded 4 marks for the correct answer and zero mark if no bubbles are darkened. No negative marks.

26. The number of common factors of 3136 and 3969 is.....
27. If  $px^2 - qxy + ry^2$  is a perfect square, where  $p = 8^2$ ,  $r = 7^2$ , then the value of  $p + q + r$  is  $5m$ ,  $m =$
28. If Preeti scored 510/600 and Pranathi scored 540/600, then the difference in their percentages is  $5K/2$ , here  $k$  is ...
29. The number that should be added to each of the numbers 8, 20, 12, 28 to make the new numbers proportional
30. A person borrowed an amount of Rs.15000 from a bank at the rate of 20% per annum. He lends Rs. 10000 to a friend at 25% PA and Rs.5000 to another friend at 30% PA. If he repays the amount to the bank after 3 years the amount of profit he gets in thousands is

## SECTION - V

## MATRIX MATCHING

This Section contains 5 questions. Each question has four statements (A, B, C and D) given in Column I and four statements (P, Q, R and S) in Column II. Any given statement in Column I can have correct matching with one or more statement(s) given in Column II. choose the correct option and bubble in the OMR sheet. Each correct answer carries 4 marks. No negative marks.

31. (A) A pair of primes are said to be twin primes if they differ by (P)  $2n + 1$   
 (B) An even prime number (Q)  $2n - 1$   
 (C) General form of odd number (R)  $2n$   
 (D) General form of even number (S)  $2$
- A) A -S ; B- S; C- P,Q; D-R;  
 B) A -P ; B- Q; C- R; D-S;  
 C) A -S ; B- Q; C- R,Q ; D-P;  
 D) A -S ; B- Q; C- P; D-R;
32. (A) The side of square and its area (P) Proportion  
 (B) Number of people in a hostel and number of days the food will last (Q) Direct variation  
 (C)  $\frac{x}{y} = k$  or  $x = ky$  (R) independent variation  
 (D)  $xy = k$  (S) Inverse variation
- A) A -S ; B- Q; C- R; D-P;  
 B) A -Q ; B- S; C- Q; D-S;  
 C) A -Q ; B- Q; C- R,Q ; D-P;  
 D) A -Q,S ; B- Q; C- P; D-R;

**33.If a, b, c, d are in proportion then**

(A) a, b, c are

(B) b is

(C) c is

(D) d is

A) A -S ; B- Q; C- R; D-P;

B)A -Q ; B- S; C- P; D-R;

C) A -Q,S ; B- Q; C- R,Q ; D-P;

D) A -S ; B- Q; C- P; D-R;

(P) third proportional

(Q) continued proportion

(R) fourth proportion

(S) mean proportion

34.(A)  $3x + 2 < 8$ (B)  $3x + 2 \leq 8$ (C)  $3x + 2 \geq 8$ (D)  $3x + 2 > 8$ 

A) A -S ; B- Q; C- R; D-P;

B) A -P ; B- Q; C- R; D-S;

C) A -S ; B- Q; C- R,Q ; D-P;

D) A -S ; B- R; C- Q; D-P;

(P) {3, 4,.....}

(Q) {2, 3,.....}

(R) {2, 1, 0.....}

(S) {1, 0, -1.....}

35. (A) {-1, 0, 1, 2}

(B) {1, 2, 3, 4, 5}

(C) {0, 1, 2, 3}

(D)  $\left\{\frac{1}{2}, \frac{1}{8}, \frac{1}{16}\right\}$ 

(P) Q

(Q) W

(R) N

(S) Z

A) A -S ; B- Q; C- R; D-P;

B)A -S ; B- R; C- Q; D-P;

C) A -S ; B- Q; C- R,Q ; D-P;

D) A -S ; B- Q; C- P; D-R;

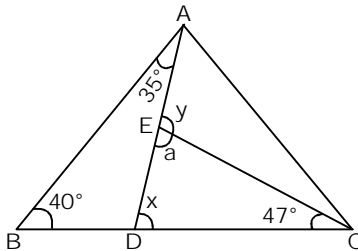


**SECTION- VI**  
**COMPREHENSION TYPE**

This section contains a paragraphs. Based upon the paragraph, 5 multiple choice questions have to be answered. Each question has 4 choices (A), (B), (C) and (D), out of which ONLY ONE is correct. Each correct answer carries 4 marks. No negative marks. Zero marks if not attempted.

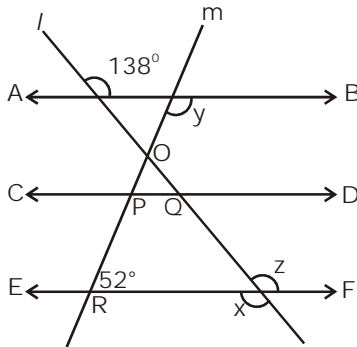
If  $y = f(x)$ , the set of all values of  $x$ , for which function is defined, is called domain of the function and the set of values of  $y$  for which  $x = f^{-1}(y)$ , is defined, is said to be range of the function. The function is written as  $f: A \rightarrow B$ , then  $A$  is said to be domain and  $B$  is said to be co-domain.

**If  $\angle BAD = 35^\circ$  and  $\angle ABD = 40^\circ$ , then the values**



36.  $x =$   
 (A)  $75^\circ$       (B)  $65^\circ$       (C)  $85^\circ$       (D)  $45^\circ$
37.  $a =$   
 (A)  $68^\circ$       (B)  $48^\circ$       (C)  $98^\circ$       (D)  $58^\circ$
38.  $y =$   
 (A)  $112^\circ$       (B)  $122^\circ$       (C)  $102^\circ$       (D)  $132^\circ$

If  $AB \parallel CD \parallel EF$ . Where  $l$  and  $m$  are transversals,



39. The value of  $x$  is

- (A) 148      (B) 138      (C) 128      (D) 118

40. The value of  $y$  is

- (A) 128      (B) 138      (C) 140      (D) 52

### SECTION - VII

#### ASSERTION & REASONING

This section contains 5 reasoning type questions. Each question has 4 choices (A), (B), (C) and (D), out of which ONLY ONE is correct. Each correct answer carries 4 marks. No negative marks for wrong answers. Zero marks if not attempted.

Codes:

- (A) Both Assertion and Reason are true and the Reason is correct explanation of the Assertion.  
 (B) Both Assertion and Reason are true but the Reason is not correct explanation of the Assertion.  
 (C) Assertion is true, but the Reason is false.  
 (D) Assertion is false, but the Reason is true.

41. A : Two partners A and B started a business with capitals of Rs. 10000 and Rs. 15000 respectively. If the profits are Rs.6000, then share of each are Rs. 3600 and Rs. 2400.

**R** : Ratio of investments is 2 : 3.

42. **A** : If  $A = 15 : 45 = 40 : 120$ ,

$B = 33 : 121 = 9 : 96$ ,

$C = 24 : 28 = 36 : 48$  and

$D = 8 : 6 = 4 : 5$ , then B is in proportion.

**R** : If two ratios are equal, then four numbers forming the two ratios in order are said to be proportion.

43. **A** :  $LIX = 50 + (10 - 1) = 59$ .

**R** : To write a number in which the smallest digit always comes to the right of the greatest digit, we add the values of all the digits.

44. **A** : 4 is the smallest composite even number.

**R** : The natural numbers which have factors other than 1 and themselves are called composite numbers.

45. **A** : The G.C.D. of 144, 198 is 16, since the last divisor is 16.

**R** : Product of two numbers is product of its GCD and LCM.

## SECTION - VIII

### CONCEPTUAL QUESTIONS

This section contains 5 reasoning type questions. Each question has 4 choices (A), (B), (C) and (D), out of which ONLY ONE is correct. Each correct answer carries 4 marks. 1 mark will be deducted for wrong answer. Zero marks if not attempted.

46. The product of two numbers a and b is  $2^{x+1} \times 3^{y-2} \times 5^{z+3}$ . If HCF is  $2^{x-1} \times 3^{y-3} \times 5^{z+3}$ , then the LCM is

A)  $2^2 \times 3$

B)  $2 \times 3^2$

C)  $2^x \times 3^y \times 5^z$

D)  $2 \times 3^2 \times 5^3$

47. If  $A = -4(x + y) + 2(5x - 3y) - (x - 7y)$  and  $B = 5(x - y) - 3(2x - 4y) + (x + 4y)$ , then  $A + [2A - (A - B)]$  is

A)  $-10x + 5y$

B)  $10x - 5y$

C)  $10x + 5y$

D)  $-10x - 5y$

48. If  $x^{x+3} = 32$ ,  $y^{y+3} = 729$ , then  $x^{x+y} \times y^{x+y}$  is

- A)  $(6)^5$       B)  $(12)^5$       C)  $(3)^{10}$       D)  $\left(\frac{3}{2}\right)^5$

49. If  $\frac{px^4y^5 + qx^3y^4 + rx^2y^3}{3x^2y^2} = 8x^2y^2 + 6xy^2 + 10y$ , then

$$\frac{px^3y^2 + qxy^2 + ry^3}{2y^2} \text{ is}$$

- A)  $12x^3 + 9x - 15y$       B)  $12x^3 - 9x + 15y$   
C)  $12x^3 - 9x - 15y$       D)  $12x^3 + 9x + 15y$

50. A man travels at a speed of 64 kmph, If he wants to reach the station in time he has to increase his speed by  $6\frac{1}{4}\%$ , then the increased speed is

- A) 72 kmph      B) 70 kmph  
C) 68 kmph      D) 66 kmph