SECTION - I

MENTAL ABILITY & LOGICAL REASONING
SINGLE ANSWER TYPE QUESTIONS

This section contains 15 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 certain code BOND is written as 1543 and DEAN is written as 3864. How is BED written in that code.
(A) 153 (B) 183 (C) 138 (D) 143

2. P is the brother of Q. M is siter of Q. T is brother of P. How is Q related to T?
(A)Brother (B) Sister
(C) Brother or sister (D) Insufficient data.

3. What would come next in the following no. sequence.
2 3 2 3 4 2 3 4 5 2 3 4 5 6 2 3 4 5 6 7 2 3 4
(A) 6 (B) 5 (C) 8 (D) 9

In each question below are three statements followed by two conclusions numbered i & ii. You have to take the three given sttements to be true even if they seem to be at varianced from commonly known facts. Then decide which of the following from the three statements disregarding commonly known facts.
Given answer (1)
If only conclusion i follows
Given answer(2)
If only conclusion ii follows
Given answer(3)
If either i or ii follows.
Given answer(4)
if neither i nor ii follows.Statements: (4-5)

4. All shoes are pens
some pens are razors.
some razors are desks.

Consclusions:
i. Some desks are shoes.
ii.Some razors are shoes.

5. Statements:
Some benches are windows.
Some windows are walls.
Some walls are trains.
Consclusions:
i. Some trains are benches.
ii.No train is bench.

Directions (6-10):
Study the following information carefully to answer these questions.
Eight friends A,B,C,D,E,F,G & H are sitting around circle facing the centre. A sits third to the left of B, while second to the right of F. D doesnot sit next of A or B. C and G always sit next to each other. H never sits next to D and C doesnt sit next to B.

6. Which of the following pairs sits between H and E.
(A)F,D (B) H,B (C) C,G (D) E,G

7. Starting from A's position, if all the 8 were arranged in alphabetical order in clockwise direction, the seating position of howmany members (excluding A) would not change?
(A)None (B) one (C) two (D) three

8. Which of the following pairs has only one person sitting between them, if the counting is done in clockwise direction.
(A) A,B (B) C,D (C) F,E (D) G,H

9. Who sits to the immediate right of E?
(A) A (B)D (C)F (D)H

10. What is the position of B with respect to C?
(A) Second to the left (B) third to the right
(C) Third to the left (D) None of these

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 a 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 willbe 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. Single Answer Type Questions :

(1) If $x = 20 + \left[10 + \{6 - (\overline{3 - 2})\}\right]$;

$y = 8\frac{1}{2} - \left\{6\frac{1}{2} - \left(4\frac{1}{2} - 1\frac{1}{2}\right)\right\}$, then $2 \times x + 6 \times y$ is

(A) 110 (B) 100 (C) 120 (D) 130

17. If one of the following perfect cubes has the sum of its digits equal to its cube root, then the perfect cube is

A) 2744 B) 4913 C) 2197 D) 9261

18. A person wanted to draw water from a well with a bucket. If $\left(\frac{1}{3}\right)^{rd}$ of the rope is in the water, $\left(\frac{1}{5}\right)^{th}$ of the rope is inside the well, but not in the water and 14m of the rope is outside the well, then the total length of the rope is

(A) 30m (B) 36m (C) 24m (D) 28m

19. The value of $\left(\frac{64}{125}\right)^{\frac{-2}{3}} \div \frac{1}{\left(\frac{256}{625}\right)^{\frac{1}{4}}} + \left(\frac{\sqrt{25}}{\sqrt[3]{64}}\right)$ is

(A) $\frac{5}{2}$ (B) $\frac{5}{3}$ (C) $\frac{5}{6}$ (D) $\frac{1}{3}$

20. If $A= 3x^4 - 9x^3 - 2x^2 - 9x + 7$,
$B = 4x^4 - 8x^3 - 7x^2 + 6x + 5$,
$C = 2x^4-8x^3+6x^2-9x-5$ and
$D = 2x^4 - 7x^3 - 6x^2 - 3x + 2$,
then $2(A + B) - (C + D)$ is

A) $10x^4 - 19x^3 + 18x^2 + 6x + 27$

(B) $10x^4 - 19x^3 - 18x^2 + 6x + 27$

(C) $10x^4 + 19x^3 + 18x^2 - 6x - 27$

(D) $-10x^4 + 19x^3 - 18x^2 - 6x - 27$

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. the true statement/s is/are

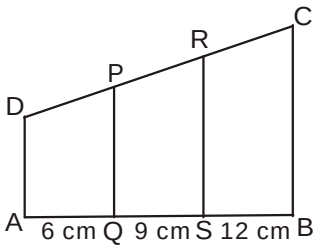
(A) 9 is a factor of 36

(B) 324 is a multiple of 36

(C) 9 is a factor of 324

(D) 324 is a factor of 9

22. Given AD || PQ || RS || BC. If CD = 30 cm, then the length of DP, PR and RC are



(A) $6\frac{2}{3}$ cm, 10 cm, $13\frac{1}{3}$ cm

(B) $13\frac{2}{3}$ cm, $6\frac{2}{3}$ cm, 10 cm

(C) $13\frac{1}{3}$ cm, $6\frac{1}{3}$ cm, 10 cm

(D) $13\frac{2}{3}$ cm, 6 cm, $10\frac{1}{3}$ cm

23. Gopal travelled for the first 8 hrs at x kmph and increase his speed by 20 kmph for the next 3 hours. If the total distance was 610 km, then the speeds at different times are

(A) 50 kmph, 30 kmph (B) 40 kmph, 60 kmph

(C) 50 kmph, 70 kmph (D) 45 kmph, 65 kmph

24. Three numbers are in the ratio 3 : 4 : 7. If the sum of the largest and the smallest number equals to the sum of twice the second and 24, then the numbers are

(A) 36, 48, 84 (B) 30, 40, 80

(C) 36, 48, 72 (D) 36, 48, 60

25. The cost of white washing the four walls of a room at the rate of Rs 50 for 100 m^2 is Rs 1024. If L : B : H = 5 : 3 : 2, then the dimensions are

(A) 50m, 30m, 10m (B) 60 m, 36 m, 24 m

(C) 40 m, 24 m, 16 m (D) 75 m, 45 m, 30 m

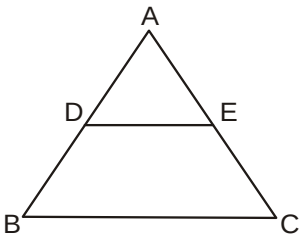
SECTION - IV
INTEGER TYPE QUESTIONS

This section contains 5 questions. The answer to each question is a single digit integer ranging from 0 to 4. 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. If $x = (-75) \div (-15) + 18 \div (-2) + (-24) \div (6) + (30) \div (6)$, $y = -12 \times -6 + 8 \times -9 + 5 \times -2 + 11 \times 1$, when x ÷ y then the quotient obtained is additive inverse of X. Where X is ...

27. How many distinct factors of 1,600 are perfect cubes ?

28. From the given diagram, If AD = 4x – 3, AE = 8x – 7, BD = 3x – 1, CE = 5x – 3, then the value of x is



29. If a number x is added to 3, 31, 1, 21 they become proportional, then the value of x is y times of 2. where y is...

30. If $\dfrac{\frac{5}{2}p - \frac{3}{5}}{\frac{7}{5} + \frac{9p}{2}} = \dfrac{19}{69}$, then the value of p 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. For example, if for a given question, statement B matches with the statements given in Q and R, then for that particular question, against statement B, darken the bubbles corresponding to Q and R in the ORS. You will be awarded 1 marks for each correct answer. There is no negative marks awarded for incorrect answer(s).

31.

(A)1 Hectare	(P) 10000 sq.m
(B)1 Gross	(Q) 12 dozens.
(C)1 Score	(R) 20 articles.
(D)1 Dozen	(S) 12 articles.

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

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) 0.5263157.....	(P) Terminating decimal
(B) $0.\overline{47}$	(Q) Repeating decimal
(C) $0.5\overline{7}$	(R)Nonterminating decimal
(D) 0.375	(S) Mixed Recurring decimal

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

B)A -R ; 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;

33. (A) $\frac{5}{1000}$ (P) Vulgar fraction

(B) $\frac{17}{8}$ (Q) Mixed fraction

(C) $2\frac{3}{5}$ (R) Decimal fraction

(D) $\frac{4}{7}$ (S) Improper fraction

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

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

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

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

34. If $\left(\frac{3}{5}x\right) + 30° = 90°$; $\left(\frac{5}{6}y\right) - 20° = 180°$;

$\left(\frac{z}{3} + \frac{z}{5}\right) = 40°$ and $4a = 360°$, then

(A) x (P) obtuse

(B) y (Q) reflex

(C) z (R) right

(D) a (S) acute

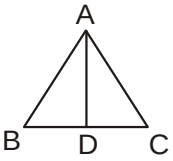
A) A -S ; B- Q; C- R; D-P;

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

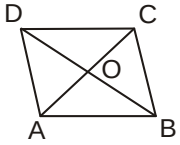
C) A -P; B- Q; C- S; D-R;

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

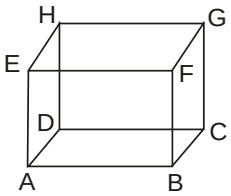
35. Count the number of line segments in each of the following figures and match them with their numbers

(A) 

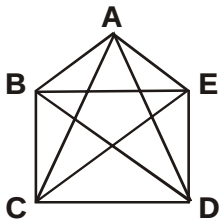
(P) 10

(B) 

(Q) 12

(C) 

(R) 5

(D) 

(S) 8

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

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

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

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

SECTION- VI
COMPREHENSION TYPE

This section contains 2 paragraphs. Based upon each 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.

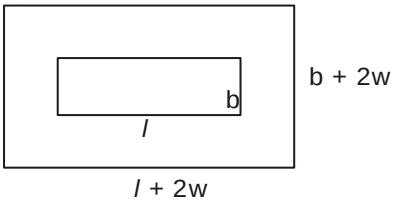
If a rectangular path of uniform width surrounds a rectangle, then length and breadth of the outer rectangle are obtained by adding twice the width of the path to the length and breadth of a rectangle.

Suppose length, breadth of the inner rectangle are *l* units and b units. If the width is 'w' units, then the dimensions of outer rectangle are *l* + 2w and b + 2w

Area of path= Area of outer rectangle – Area of inner rectangle.

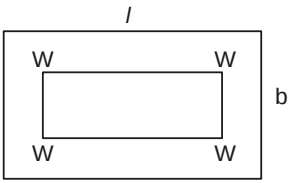
Find the area of the path in the indicated figures :

36.



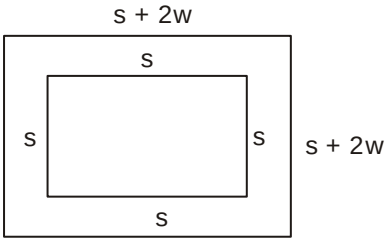
(A) $2wl - 2wb + 4w^2$
(B) $2wl + 2wb - 4w^2$
(C) $2wl + 2wb + 4w^2$
(D) $-2wl + 2wb + 4w^2$

37.



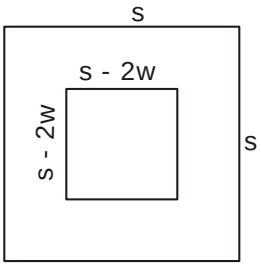
(A) $2wl - 2wb - 4w^2$
(B) $-2wl + 2wb - 4w^2$
(C) $2wl + 2wb + 4w^2$
(D) $2wl + 2wb - 4w^2$

38.



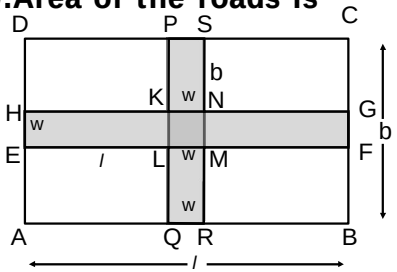
(A) $4ws + 4w^2$
(B) $4ws - 4w^2$
(C) $-4ws - 4w^2$
(D) $-4ws + 4w^2$

39.



(A) $4ws + 4w^2$
(B) $4ws - 4w^2$
(C) $-4ws - 4w^2$
(D) $-4ws + 4w^2$

40. Area of the roads is



(A) $bw + lw - w^2$
(B) $bw - lw - w^2$
(C) $bw + lw + w^2$
(D) $-bw + lw - w^2$

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 :** $2(3x + 4y) = 6x + 8y$ for all x, y integers.
R : Left Distributive law holds good for integers.

42. **A :** Anything divided by zero is not defined.
R : Zero is a factor of every number.

43. A : $2x + 3 = 0$ implies $x = -3 / 2$.

R : Zero of a polynomial exists for every linear equation of degree one.

44. A : $(A + B)^2 = A^2 + 2AB + B^2$.

R : AB is not equal to BA in case of numbers.

45. A : Square is a form of Rectangle in which length is equal to breadth.

R : Cube is a form of cuboid if all the dimensions of cuboid are equal.

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. If the first 3 digit composite number is added to the first odd composite number, then the resultant answer is a

(A) Composite number (B) Prime

(C) Perfect number (D) Even number

47. If $X = 2^{a+100}$, $Y = 4^{b+99}$, $Z = 8^{C+101}$, $A = 16^{d+98}$ where $a = 0, b = 3, c = 1, d = 6$, then $\sqrt{x}, \sqrt{y}, \sqrt[6]{z}, \sqrt[16]{A}$ in descending order is

(A) $\sqrt[6]{z}, \sqrt{y}, \sqrt{x}, \sqrt[16]{A}$ (B) $\sqrt{y}, \sqrt[16]{z}, \sqrt{x}, \sqrt[16]{A}$

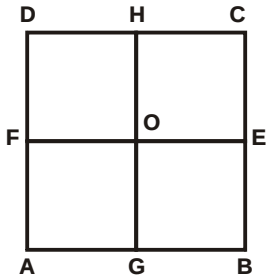
(C) $\sqrt{y}, \sqrt[16]{A}, \sqrt{x}, \sqrt[6]{z}$ (D) $\sqrt[6]{z}, \sqrt{x}, \sqrt[16]{A}, \sqrt{y}$

48. If $A = 2^x$, $B = 3^{x+1}$ and $C = 4^{x+2}$, where $x = 2$, then additive inverse of $Aa^5 – Ba^4 – Ca^3$ is

(A) $-4a^5 + 27a^4 – 256a^3$ (B) $4a^5 – 27a^4 + 256\ a^3$

(C) $-4a^5 – 27a^4 – 256a^3$ (D) $-4a^5 + 27a^4 + 256a^3$

49. If OH = 9a units and OE = 3b units, where ABCD is a square, then area of ABCD = area of 4OECH, then Area of ABCD rectangle is



(A) 108 ab sq.units (B) 116 ab sq.units

(C) 104 sq.units (D) 102 sq.units

50. If A = 6 × 6 × 6 ..... 20 times, B = a × a ..... 8 times, C = p × p × p ..... 9 times, D = m × m × m ..... 15 times and E = 3 × 3 × 3 ..... 10 times, then their H.C.F of ABC and ECD is

(A) $2^{10}p^9$ (B) $3^{10}p^9$ (C) $3^{11}p^9$ (D) 3^9p^9