

SECTION A

1. Some components of a geometrical figure are given in fig(X), Identify this geometrical figure from amongst the four options:

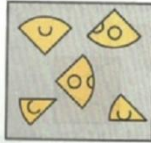
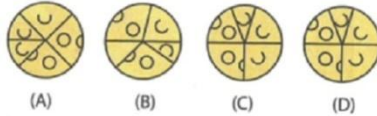
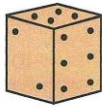


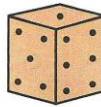
Fig. (X)



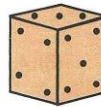
2. Three different positions of a dice are shown below. How many dots lie opposite to 2 dots?



(i)



(ii)



(iii)

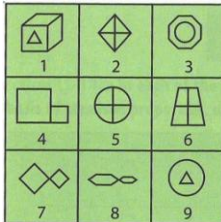
A.1

B.3

C.5

D.6

3. Group the given figures into the classes on the basis of common properties, using each figures only once.



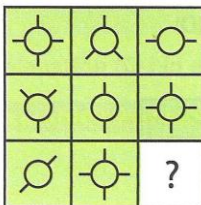
A.1,2,4; 3,5,7; 6,8,9

B.1,3,6; 2,4,8; 5,7,9

C.1,3,9; 2,5,6; 4,7,8

D.1,3,9; 2,7,8; 4,5,6

4. Identify which one of the alternative figures completes the pattern in the given matrix:



(A)



(B)

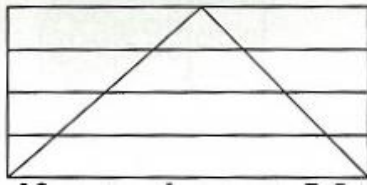


(C)



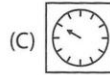
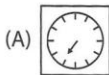
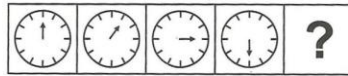
(D)

5. How many triangles and rectangles are there in the adjoining figure?

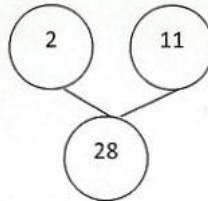
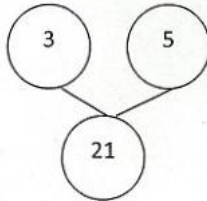
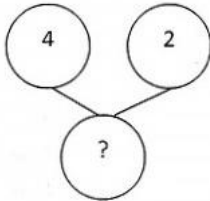


- A. 12 triangles, 10 rectangles B. 8 triangles, 4 rectangles
 C. 12 triangles, 10 rectangles D. 8 triangles, 4 rectangles
6. Select a figure from among the options which will continue the series established by the Problem figure:

Problem Figures



7. Select a number which will replace the question mark in the number pattern given below.

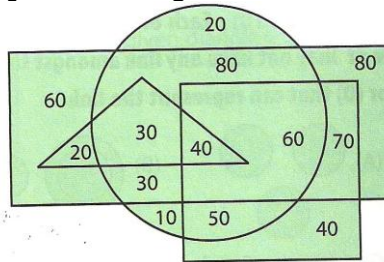


- A. 16 B. 14 C. 21 D. 15
8. If the digits 4 and 5, and the digits 7 and 2 are interchanged, then compute the value of the expression: $2 \times 5 \div 7 - 15 + 45 - 54 \div 9$.
- A. 52 B. 102 C. 84 D. 108
9. There is a queue against the Metro station counter. The passenger A is 9th from the front and another passenger B is 6th from the back. If a third passenger C is exactly in the middle of A and B is 20th from the front. How many passengers are there in all in the queue?
- A. 49 B. 42 C. 40 D. 36
10. How many pairs of letters in the given word each of which has as many letters between them in the word as in the English alphabet?

S I G N A T U R E

- A. None B. 1 C. 2 D. 3

11. How many persons are male vegetarian, who are employed and married: Triangles represent the Married persons, Circle represent Unemployed, Square represents Men, Rectangle represents Vegetarians.

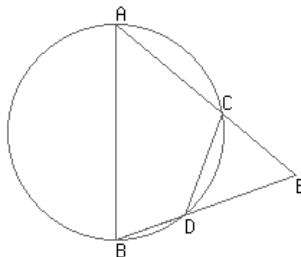


- A.70 B.40 C.120 D.180
12. Raghu starts his trip from a fixed point. He moves towards east and walks 25 metres. He then turns to his left and walks 30 metres. Next he moves 25 metres to his right. He then turns to his right again and walks 55 metres. Finally he turns to his right and moves 75 metres. In which direction is he now from his starting point?
 A.South B.North
 C.South-West D.North-East
13. Raunak, Kaushal, Abhinav and Jonny are students of a school. Three of them stay far from the school and one near it. Two study in class IV, one in class V and one in class VI. They study Hindi, Mathematics, Social Science and Science. One is good at all the four subjects while another is weak in all of these. Raunak stays far from the school and is good at Mathematics only while Kaushal is weak in Mathematics only and stays close to the school. Neither Kaushal, Raunak nor Abhinav studies in class VI. One who is good at all subjects studies in class V. Name the boy who is good at all the subjects.
 A.Raunak B.Kaushal C.Abhinav D.Jonny
14. If 'A X B' means A is the sister of B; 'A + B' means A is the father of B; 'A - B' means A is the brother of B; 'A ÷ B' means A is the mother of B and 'A = B' means A is the son of B. What does $P + Q \div R - S \times T = U$ mean if U is male ?
 A.P is the mother-in-law of U B.U is the son of P
 C.P is the father-in-law of U D.P and U are brothers.

15. In a certain code 'de pa lit' means 'she has come', 'se ma la' means 'move there fast' and 'de ma nik' means 'she keeps fast'. What is the code for 'keeps' ?
- A.nik B.ma C.pa D.de

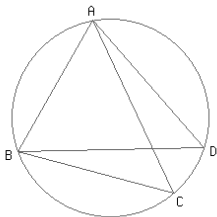
SECTION B

16. AB is diameter of the circle. If A and B are connected to E, circle is intersected at C and D respectively. If AB = 16 cm



and CD = 8 cm, find $\angle AEB$.

- A. 60° B. 50°
 C. 70° D. 40°
17. If $\angle DAB = 71^\circ$ and $\angle ABD = 59^\circ$, find the value of $\angle ACB$.



- A. 50° B. 45°
 C. 60° D. 55°
18. ABCD is a cyclic quadrilateral such that AB is a diameter of the circle circumscribing it and $\angle ADC = 110^\circ$, then find the value of $\angle BAC$.
- A. 15° B. 20°
 C. 25° D. 10°
19. Point (-9, 5) lies in which quadrant?
 A. Third quadrant B. First quadrant
 C. Fourth quadrant D. Second quadrant
20. A box contains 6 blue and 7 red balls. Devansh takes out a ball, puts it back, and then takes out another ball. What is the probability that both balls were blue?

- A. 25/127 B. 13/128
 C. 36/169 D. 28/169

21. Coin A is flipped 3 times and coin B is flipped 4 times. What is the probability that the number of heads obtained from flipping the two coins is the same?

- A. 33/128 B. 35/128
 C. 39/128 D. 37/128

22. The following are the marks obtained by 72 students in English. The median of their score is _____

- A. 5 B. 4
 C. 3 D. 1

Marks	Tally Marks	Number of students
2	=	12
3	 =	15
4	=	7
5	=	13
6	=	7
7	=	9
8	=	3
9	=	6

23. A gymnasium weighs all the people that come in to exercise. On one morning, it notes down the weights of 7 people in kgs as follows: 76 kgs, 58.2 kgs, 66 kgs, 55 kgs, 57 kgs, 69 kgs, 59.8 kgs. The average of their weights is calculated. If a new person now comes in to exercise, and the new average is calculated to be 63.9, then what was the weight of the new person?

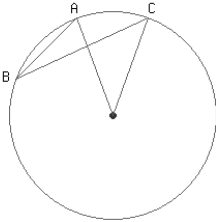
- A. 70.2 Kg B. 65 Kg
 C. 62.2 Kg D. 60.4 Kg

24. Two chords AB and AC of a circle subtends angles equal to 40° and 30° , respectively at the centre. Find $\angle BAC$, if AB and AC lie on the opposite sides of the centre.

- A. 145° B. 155°
 C. 150° D. 140°

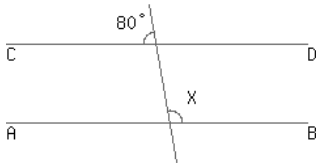
25. If O is center of the circle and $\angle AOC = 40^\circ$, find the value of $\angle ABC$.

- A. 20° B. 25°
 C. 10° D. 15°



26. If AB and CD are parallel, find the value of angle X

- A. 75° B. 100°
 C. 60° D. 120°



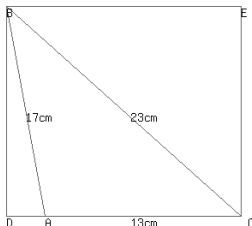
27. The adjacent sides of a parallelogram are 7 cm and 9 cm. The ratio of their altitudes is :

- A. 7:16 B. 7:4.5
 C. 49:81 D. 7:9

28. The perimeter of a quadrilateral is 56cm. If the first three sides of a quadrilateral, taken in order are 22cm, 17cm and 12cm respectively, and the angle between fourth side and the third side is a right angle, find the area of the quadrilateral.

- A. 182.4 cm^2 B. 110.31 cm^2
 C. 280.62 cm^2 D. 140.31 cm^2

29. If in the figure below $AB = 17\text{cm}$, $BC=23\text{cm}$ and $CA = 13\text{cm}$, find the area of the rectangle BDCE.



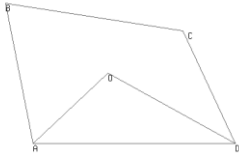
- A. Area : 263.95 Cm^2 B. Area : 304.65 Cm^2
C. Area : 461.75 Cm^2 D. Area : 233.4 Cm^2

30. The equation of straight line which is parallel to y-axis, and is at a distance of p from y-axis is
A. $y - x = p$ B. $x = p$
C. $y + x = p$ D. $y = p$

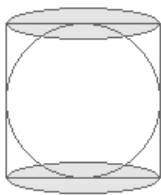
SECTION C

31. The positive solutions of the equation $ax + by + c = 0$ always lie in which quadrant?
A. Second quadrant B. First quadrant
C. Fourth quadrant D. Third quadrant
32. The Taxi fare in Gujarat is Rs. 20 for the first kilometer and Rs 11 per kilometer for subsequent distance covered. If distance is represented as d, and fare is represented as f, find the linear equation for this relationship.
A. $f = 20d + 11$ B. $f = 11d + 9$
C. $f = 11d + 20$ D. $f = 20d + 9$
33. The product of two irrational numbers is _____
A. an irrational number
B. a rational or an irrational number
C. neither rational or irrational number
D. a rational number
34. A fraction P/Q can be expressed as a terminating decimal, if "Q" has no prime factors other than
A. 2, 3 B. 5, 7
C. 3, 5 D. 2, 5
35. if $-5/X = X/5$, then X is _____ a rational number
A. not B. always
C. sometimes D. none of these.
36. If $X^{70} + 70$ is divided by $(x - 1)$, find the remainder.
A. 69 B. 71
C. 70 D. 0
37. If $2x^4 + x^3 + x^2 + 2x - 21$ is divide by $x + 2$, the remainder will be :
A. 3 B. 2
C. 4 D. 4
38. ABCD is a parallelogram. The angle bisectors of $\angle A$ and $\angle D$ meet at O. What is the measure of $\angle AOD$?
A. 60° B. 90°

- C. 120° D. 45°
39. The length and breadth of a rectangle is 4 cm and 3 cm. Find the radius of circumcircle of this rectangle.
 A. 1.5 cm B. 1.67 cm
 C. 2 cm D. 2.5 cm
40. ABCD is a trapezium with sides AB and CD being parallel to each other. If P and Q are the midpoints of the diagonals of this trapezium, and AB = 13 cm and CD = 8 cm, find the length of segment PQ.
 A. 1.67 cm
 B. 2.5 cm
 C. Cannot find PQ because AD is not perpendicular to AB
 D. 10.5 cm
41. In the quadrilateral ABCD, AO and DO are the bisectors of angle A and angle D respectively. If angle B = 120° and angle C = 70° than angle AOD is:
 A. 95° B. 190°
 C. 109° D. 84°



42. A sphere and a right circular cylinder have the same radius. If the volume of the sphere is one fifth the volume of the cylinder, then what is the ratio of cylinder's height and radius?
 A. 4:3 B. 3:4
 C. 20:3 D. 3:20
43. The radius of a cylinder is halved and the height is tripled. What is the area of the curved surface now compared to the previous surface area?
 A. 1.5 times B. two times
 C. same D. three times
44. A sphere is just enclosed inside a right circular cylinder. If surface area of sphere is 120 cm^2 , find curved surface area of cylinder.



A. 120 cm^2

C. 90 cm^2

B. 110 cm^2

D. 42 cm^2

45. If $f(a) = 4a^2 + 5a - 3$, $f(a) + f(-a) = ?$

A. $8a^2 + 6$

B. $8a^2 - 6$

C. $-8a^2 - 6$

D. $-8a^2 + 6$