Class – 10th

SAMPLE PAPER

SECTION – A (REASONING)

1. If seventh day of a month is three days earlier than Friday, what day will it be on nineteenth day of the month?

   (a) Sunday (b) Monday (c) Wednesday (d) Friday

2. Six books P, Q, R, S, T and U are placed side by side. R, Q, T have blue covers and other books have red covers. Only S and U are new books and the rest are old. P, R, S are law reports, the rest are Gazetteers. Which two books are old Gazetteers with blue covers?

   (a) Q and R (b) Q and T (c) Q and U (d) T and U

3. A group of 1200 persons consists of captains and soldier is travelling in a train. For every 15 soldiers there is one captain. The number of captains in group is:

   (a) 85 (b) 80 (c) 75 (d) 70

4. Pointing to Kapil, Shilpa said, "His mother's brother is the father of my son Ashish." How is Kapil related to Shilpa?

   (a) Sister-in-law (b) Nephew (c) Niece (d) Aunt

5. A, B,, C, D, E and F are sitting around a round table. A is between E and F, E is opposite to D, and C is not in either of the neighboring seats of E. Who is opposite to B?

   (a) C (b) D (c) F (d) A

6. Which word has the same relation with the third word, as the first two words have between them?

   Knife : Cut : : Axe : ?

   (a) Lacerate (b) Chop (c) Slice (d) Sever

7. I start from my home and go 2 km straight. Then, I turn towards my right and go 1 km. I turn again towards my right and go 1 km again. If I am north-west from my house, then in which direction did I go in the beginning?

   (a) North (b) South (c) East (d) West

8. 0, 4, 6, 3, 7, 9, 6, …?... 12.

   (a) 8 (b) 10 (c) 11 (d) 14

9. Find a wrong number in the series:

   7, 28, 63, 124, 215, 342, 511

(a) 7 (b) 28 (c) 124 (d) 215

10. In the following questions, Choose the missing term out of the given alternatives,

A, CD, GHI, …?.., UVWXY

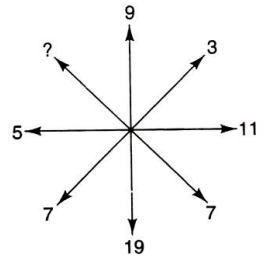
(a) LMNO (b) MNOL (c) NOPQ (d) MNOP

11. Direction: In the following letter series, some of the letters are missing which are given in that order as one of the alternative below it. Choose the correct alternative.

c __ bba __ cab __ ac __ ab __ ac

(a) abcbc (b) acbcb (c) babcc (d) bcacb

12. Find the missing character in the following question.



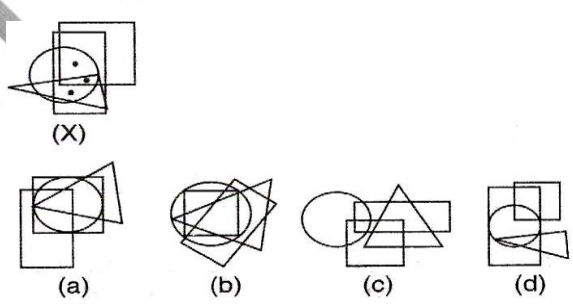
(a) 4 (b) 5

(c) 15 (d) 13

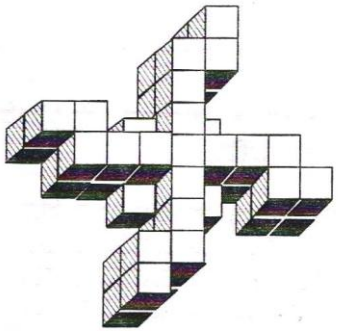
13. How many times in a day, the two hands of a clock coincide?

(a) 11 (b) 12 (c) 22 (d) 24

14. The following question, there is a figure (X) with one or more dots placed in it. This figure is followed by four other answer figures marked (a), (b), (c) and (d); only one of which is such as to make possible the placement of the dot or dot satisfy the same conditions as in the figure (X). Find the correct answer figure in this.



15. Direction: Count the number of cubes in the following figure:



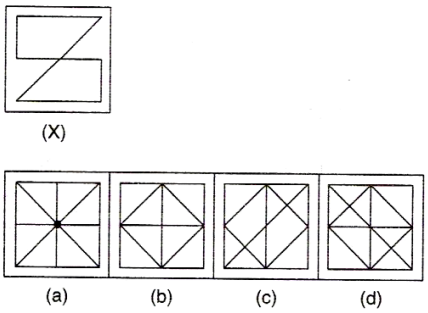
(a) 45 (b) 50

(c) 46 (d) 49

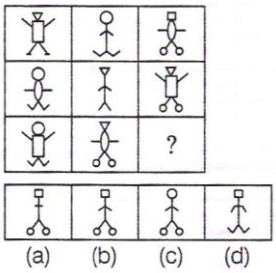
16. 6, 11, 21, 36, 56, (…?..)

(a) 42 (b) 51 (c) 81 (d) 91

17. Direction: A fig. (X), is given, followed by four complex figures in such a way that fig.(X) is embedded in one of them. Choose that one

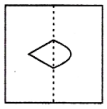


18. Direction: In the following question, find out which of the following answer figure (a), (b), (c) and (d) completes the figure matrix

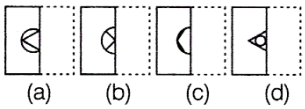


19. Direction: In the following question, find one correct answer figurer from four alternatives which resembles the pattern forms when the transparent sheet design folded along the dotted line.

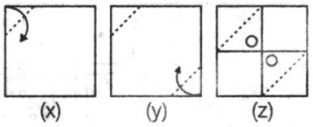
Problem figure

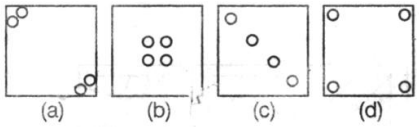


Answer Figure



20. Direction: In the following, three figures (X), (Y), (Z) showing a sequence of folding a paper are given, The figure depicts the cut, made on the folded paper. Select the answer from the alternatives, which would most closely resemble the third figure, when it is unfolded





SECTION – B (MATHEMATICS)

21. If $t = \frac{1}{1-\sqrt[4]{2}}$, then t is equal to _____.

(a) $(1-\sqrt[4]{2})(2-\sqrt{2})$ (b) $(1-\sqrt[4]{2})(2+\sqrt{2})$

(c) $-(1+\sqrt[4]{2})(1+\sqrt{2})$ (d) $(1+\sqrt[4]{2})(2+\sqrt{2})$

22. If α, β are the zeroes of the polynomial $f(x) = x^2 - p(x+1) - c$, then $(\alpha + 1)(\beta + 1)$ is equal to _____.

(a) c – 1 (b) 1 – c (c) c (d) 1 + c

23. The value of k, for which the system of equations kx – 3y + 6 = 0, 4x – 6y + 15 = 0 represent parallel lines is _____.

(a) 1 (b) 2 (c) 3 (d) 4

24. If $x = \sqrt{1+\sqrt{1+\sqrt{1+.....}}}$, then _____.

(a) x = 1 (b) 0 < x < 1 (c) x is infinite (d) 1 < x < 2

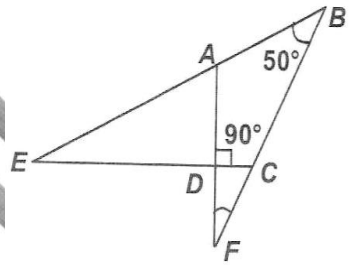
25. The value of $\sum_{k=1}^{15}(2k-3)$ is _____.

(a) 390 (b) 195 (c) 210 (d) 420

26. The area of a triangle is 5 square units, two of its vertices are (2, 1) and (3, –2). The third vertex lies on y = x + 3. What will be the third vertex ?

(a) $\left(\frac{5}{3},\frac{13}{3}\right)$ (b) $\left(\frac{7}{2},\frac{13}{2}\right)$ (c) (3, 4) (d) (1, 2)

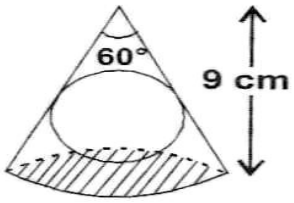
27. In the adjacent figure, BA and BC are produced to meet CD and AD produced in E and F. Then $\angle$ AED + $\angle$ CFD is _____.



(a) 80^o (b) 50^o

(c) 40^o (d) 160^o

28. A sphere is placed in a cone of height 9 cm as shown in figure. The volume of sphere if it touches lateral surface and base of cone is _____.



(a) $3\pi\ cm^3$ (b) $12\ \pi\ cm^3$

(c) $24\ \pi\ cm^3$ (d) $36\ \pi\ cm^3$

29. If $\tan\theta + \sin\theta = m$ and $\tan\theta - \sin\theta = n$, then $m^2 - n^2$ equals _____.

(a) $\sqrt[4]{\frac{m}{n}}$ (b) $\sqrt[4]{\frac{n}{m}}$ (c) $4\sqrt{mn}$ (d) 4 mn

30. By selling an article for Rs 480 a person lost 20%. For what amount should he sell it to make a profit of 20% ?

(a) Rs 800 (b) Rs 760 (c) Rs 720 (d) Rs 680

31. Point P divides the line segment joining the points A (–1, 3) and B(9, 8) such that $\frac{AP}{BP}=\frac{k}{1}$. If P lies on the line x – y + 2 = 0, then find the value of k.

(a) 5/3 (b) 1/3 (c) 1/2 (d) 2/3

32. In a morning walk, three persons step off together, their steps measure 80 cm, 85 cm and 90 cm respectively. What is the minimum distance each should walk so that he can cover distance in complete steps?

(a) 122 m 40 cm (b) 120 m (c) 121 m 42 cm (d) 129 m 50 cm

33. If α and β are the zeroes of the polynomial $f(x) = x^2 - px + q$, then find the value of $\alpha^2+\beta^2$.

(a) $p^2 + q$ (b) $p^2 - 2q$ (c) $p^2 + q^2$ (d) $p^2 - 5q$

34. Solve: $\frac{x}{a}+\frac{y}{b}=a+b$ and $\frac{x}{a^2}+\frac{y}{b^2}=2$

(a) $x = a^2$ and $y = b^2$ (b) $x = 1$ and $y = ab$

(c) $x = a$ and $y = b^2$ (d) $x = a^2$ and $y = b$

35. Solve : $x=\frac{1}{2-\frac{1}{2-\frac{1}{2-x}}}, x \neq 2$

(a) $x = 2$ (b) $x = 3$ (c) $x = 4$ (d) $x = 1$

36. If m^{th} term of an A.P. is $\frac{1}{n}$ and n^{th} term is $\frac{1}{m}$, then find its $(mn)^{th}$ term :

(a) 2 (b) – 1 (c) 0 (d) 1

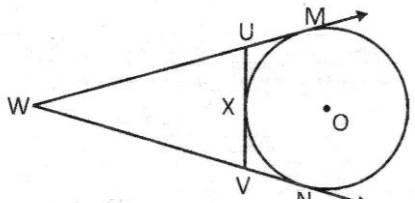
37. Three sphere whose radii is 3 cm, 4 cm and 5 cm are melted to form a big sphere. Then what is the radius of big sphere.

(a) 6 cm (b) 7 cm (c) 8 cm (d) 9 cm

38. The length of the diagonals of a rhombus are 16 cm and 12 cm, then the length of the sides of the rhombus is

(a) 9 cm (b) 10 cm (c) 8 cm (d) 20 cm

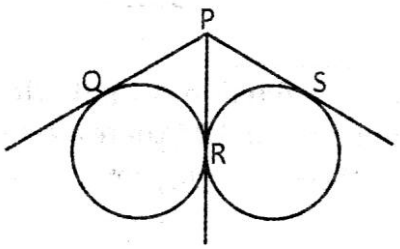
39. In the given figure, find the length of VX, if WM = 11 cm and WV = 7 cm.



(a) 8 cm (b) 6 cm

(c) 4 cm (d) 2 cm

40. In the given figure find the length of PQ + PS, if PR = 5cm.



(a) 5 cm (b) 7 cm

(c) 9 cm (d) 10 cm

SECTION – C (SCIENCE)

41. The unwanted materials or impurities present in the ore are called:

(a) Mineral (b) Alloy (c) Gangue (d) Corrosion

42. Which of the following is an alloy of mercury?

(a) Brass (b) Solder (c) Amalgam (d) Cinnabar

43. Which one of the following hormones inhibits the growth of a plant?

(a) Cytokinin (b) Auxin (c) Gibberellins (d) Abscisic acid

44. The brain is covered by membranes called:

(a) Pleura (b) Placenta (c) Meninges (d) Bladder

45. The muscle of the iris control the:

(a) Focal length of the eye-lens (b) Opening of the pupil

(c) Shape of the crystalline (d) Optic nerve

46. In the dispersion of white light, which of the following colour bends the least?

(a) Violet (b) Red (c) Blue (d) Green

47. What is the essential difference between an AC generator and a DC generator?

(a) AC generator has an electromagnet while a DC generator has permanent magnet.

(b) DC generator will generate a higher voltage.

(c) AC generator will generate a higher voltage

(d) AC generator has slips rings while the DC generator has a commutator (Split rings).

48. What is the main reason for using a solenoid instead of a straight wire for producing magnetic field?

(a) To concentrate the magnetic field produced throughout the wire to flow through the core of the solenoid.

(b) To reduce the space taken up by the long wire.

(c) To ensure that magnetic field strength is constant

(d) To reduce the amount of wires used to produce the same magnetic field strength as a straight wire.

49. Why do noble gases exist as monoatomic gases?

(a) They have low melting point.

(b) They have high boiling point.

(c) Their atoms have duplet or octet electrons arrangements.

(d) The force of attraction between their atoms is very weak.

50. One mole of a hydrocarbon 'X' reacted completely with one mole of hydrogen gas in the presence of a heated catalyst. What could be formula of 'X'?

(a) C_2H_6 (b) C_3H_8 (c) C_5H_{10} (d) C_7H_{16}

51. Which of the following is NOT true concerning photosynthesis in green plants?

(a) Absorbs carbon dioxide (b) Releases oxygen

(c) Occurs in the presence of light (d) Absorbs carbohydrates

52. In humans what is the probability for the baby to be a baby boy?

(a) 25% (b) 50% (c) 75% (d) 100%

53. A student added dilute HCl to a test tube containing zinc granules. Which of the following observations are correct?

(A) Zinc surface became dull and black.

(B) A gas was evolved which burnt with a pop sound.

(C) The option remained colorless.

(a) A and B (b) A and C (c) B and C (d) A, B and C

54. Which of the following reactions are exothermic in nature?

(A) Evaporation of water (B) Dissolution of sodium hydroxide in water

(C) Dilution of sulphuric acid (D) Dissolution of ammonium chloride in water.

(E) Combustion of methane gas

(a) (A), (D) and (E) (b) (B), (C) and (E) (c) (A), (B) and (D) (d) (A), (C) and (D)

55. The oxide of which of the following element is not acidic?

(a) Cl (b) S (c) N (d) Li

56. Which of the following elements will form an acidic oxide?

(a) An element with atomic number 7 (b) An element with atomic number 3

(c) An element with atomic number 12 (d) An element with atomic number 19

57. A particle moves towards a concave mirror of focal length 30 cm along its axis and with a constant speed of 4 cm/s. What is the speed of its image when the particle is at 90 cm from the mirror?

(a) 2 cm/s (b) 8 cm/s (c) 1 cm/s (d) 4 cm/s

58. A person looks into the mirror by placing it close to the face was erected, laterally inverted and of the same size. Then, the mirror must be

(a) Plane (b) Concave (c) Convex (d) Plane or concave.

59. The purpose of the glass cover on top of a box-type solar cooker is

(a) Allow one to see the food being cooked (b) Allow more sunlight into the box

(c) Prevent dust from entering the box (d) Reduce heat loss by radiation.

60. The site of a hydroelectric plant should be chosen carefully because it

(a) Produces a large amount of carbon monoxide and carbon dioxide

(b) Produces a large amount of electricity

(c) Affects the organisms of that region.

(d) Is expensive.

ANSWER KEY

1.	A	2.	B	3.	C	4.	B	5 .	C
6.	B	7.	D	8.	B	9.	B	10.	D
11.	B	12.	C	13.	C	14.	B	15.	C
16.	C	17	A	18.	B	19.	A	20.	C
21.	C	22.	B	23.	B	24.	D	25.	B
26.	B	27.	C	28.	D	29.	C	30.	C
31.	D	32.	A	33.	B	34.	A	35.	D
36.	D	37.	A	38.	B	39.	C	40.	D
41.	C	42.	C	43.	D	44.	C	45.	B
46.	B	47.	D	48.	A	49.	C	50.	C
51.	D	52.	B	53.	D	54.	B	55.	D
56.	A	57.	C	58.	A	59.	D	60.	C