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STaRT-2012
SAMPLE TEST PAPER
CLASS-IX

Time : 90 min. **Maximum Marks : 200**

GENERAL INSTRUCTIONS

1. he question paper contains **50** questions, **15 Questions from Mathematics (1-15), 10 questions from Physics (16-25), 5 questions from Chemistry (26-30), 5 questions from Biology (31-35), and 15 questions from Mental Ability (36-50).**

2. **The OMR sheet given in the examination hall is the Answer Sheet.**

3. **Blank papers, clip boards, log tables, slide rule, calculators, mobile or any other electronic gadgets in any form is not allowed.**

4. **Do not forget to mention your roll number neatly and clearly in the blank space provided in the answer sheet.**

5. **Each Question carries 4 marks. '1' mark will be deduct for each wrong answer. So attempt each question carefully.**

6. **No rough sheets will be provided by the invigilators. All the rough work is to be done in the blank space provided in the question paper.**

7. **In case of any dispute, the answer filled in the OMR sheet available with the institute shall be final.**

Name : _____ **Roll No. :** _____

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1. If $x + y = 5$ and $xy = 6$ then the value of $(x^3 + y^3)$ is -
(A) 17 (B) 35 (C) 40 (D) 45

2. If C and A are for circumference and area of a circle respectively, then-
(A) $A = 4\pi C$ (B) $C = 4\pi A$ (C) $C^2 = 4\pi A$ (D) none of these

3. The base of an isosceles triangle is 12 cm and it's perimeter is 32 cm then the area of triangle is-
(A) 30 cm^2 (B) 48 cm^2 (C) 40 cm^2 (D) 20 cm^2

4. If $2^X - 2^{X-1} = 16$, then the value of x^2 is-
(A) 4 (B) 9 (C) 16 (D) 25

5. A park is 10 metres long and 8 metres broad. The length of the longest pole that can be placed in the park is-
(A) 6 m (B) 12.8 m (C) 13.4 m (D) 1.8 m

6. If M is the mean of 50 observation $x_1, x_2, x_3, \ldots\ldots, x_{50}$, then the mean of $\frac{x_1}{50}, \frac{x_2}{50}, \frac{x_3}{50}, \ldots\ldots, \frac{x_{50}}{50}$ is :
(A) $\frac{M}{50}$ (B) $M + \frac{1}{50}$ (C) $\frac{50}{M}$ (D) M

7. Any cyclic parallelogram is a :
(A) rectangle (B) rhombus (C) trapezium (D) square

8. $\left(\frac{5}{6}\right)^2$ is equal to-
(A) $1^2 + 2(1)\left(\frac{5}{6}\right) + \left(\frac{5}{6}\right)^2$ (B) $1^2 - 2(1)\left(\frac{5}{6}\right) + \left(\frac{5}{6}\right)^2$
(C) $1^2 + 2(1)\left(\frac{1}{6}\right) + \left(\frac{1}{6}\right)^2$ (D) $1^2 - 2(1)\left(\frac{1}{6}\right) + \left(\frac{1}{6}\right)^2$

Space For Rough Work

9. The mean of the value of 1, 2, 3 ..... n with respective frequency x, 2x, 3x ..... nx is :

(A) $\frac{n+1}{2}$ (B) $\frac{2n+1}{3}$ (C) $\frac{n}{2}$ (D) $\frac{2n-1}{6}$

10. The total surface area of a cube is 384 cm^2 then its volume is :

(A) 512 cm^3 (B) 440 cm^3 (C) 300 cm^3 (D) 438 cm^3

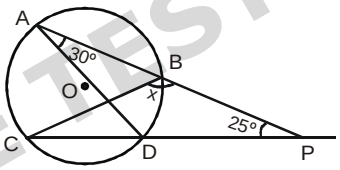
11. If $a^m a^n = a^{mn}$ then m(n-2)+n (m–2) is equal to :

(A) –1 (B) +1 (C) 0 (D) –½

12. If x+y = a and xy = b then the value of $\frac{1}{x^3}+\frac{1}{y^3}$ is equal to:

(A) a^3 –3ab (B) $\frac{a^3-3ab}{b^3}$ (C) $\frac{a^3+3ab}{b^3}$ (D) a^3 + 3ab

13. In the given figure, the value of x is :



(A) 125° (B) 120° (C) 145° (D) 135°

14. If a man's wages are increased by 10% and afterwards decreased by 10% then the total change in percent is-

(A) no effect (B) 1% increase (C) 1% decrease (D) can't determined

15. A sum of many at compound interest amounts to thrice itself in 3 years. In how many years will it be 9 times itself ?

(A) 18 (B) 12 (C) 9 (D) 6

16. If the value of 'g' (acceleration due to gravity) at a height h above the surface of the earth is the same as at a depth d below it, then (Assume that h and d < < R earth radius) :

(A) h = d (B) h = d/2 (C) d = $\frac{h}{2}$ (D) d = h^2

17. A force of 20 N acts on a body and the body moves through 1 m at an angle of 45º to the direction of force . The work done by the force is :

(A) $10\sqrt{2}$ J (B) $\frac{10}{\sqrt{2}}$ J (C) $-10\sqrt{2}$ J (D) $-\frac{10}{\sqrt{2}}$ J

18. In which of the following the work done is zero.
(A) Stretching of a spring
(B) Work done by force of gravity when object is moving upward
(C) Work done by the string when it whirls a stone tied to it, in a circle.
(D) Lifting a weight upwards applying upward force.

19. Power of a moving body is stored in the form of :
(A) work and distance (B) force and distance (C) force and velocity (D) force and time

20. A manufacturer marks the thermometer wrongly.
At 0ºC it reads –10ºC, at 100ºC it reads 85ºC. Then the reading at 50ºC will be :
(A) 40ºC (B) 32.5ºC (C) 37.5ºC (D) 42.5ºC

21. The S.I. unit of linear (α), superficial (β) and cubical (γ) expansion coefficient are respectively:
(A) per ºC, per $ºC^2$, per $ºC^3$ (B) all are dimension less
(C) all has same unit of per ºC (D) all has same unit of per K

22. The resultant of mixing equal masses of ice at –10°C and water at 60°C is :
(The specific heat of ice = 0.5 cal g^{-1} $X°C^{-1}$)
(A) temperature 0°C, $\frac{11}{16}$ of total mass of ice melts
(B) temperature 0°C, $\frac{16}{11}$ of total mass of Ice melts
(C) temperature 10°C, $\frac{11}{16}$ of total mass of ice melts
(D) data given are not sufficient

23. Ultrasonic, infrasonic and audible waves travel through a medium with speeds v_u, v_i and v_a respectively, then :
(A) $v_u < v_i < v_a$ (B) $v_u > v_i > v_a$ (C) $v_u = v_i = v_a$ (D) $v_i < v_a < v_u$

Space For Rough Work

24. A sonar echo takes 4.4s to return from a submarine. If the speed of sound in water is 1500 ms^{-1}, then the distance of submarine from the sonar is :
(A) 1500 m (B) 3000 m (C) 3300 m (D) 3600 m

25. A person is listening to a tone of 500 Hz sitting at a distance of 450 m from the source of the sound. What is the time interval between the successive compression from the source ?
(A) 2×10^{-3} s (B) 2×10^{-2} s (C) 2 s (D) 0

26. Which of the following is the most non-metallic element ?
(A) Br (B) Cl (C) P (D) S

27. Which of the following is the strongest acid ?
(A) HBr (B) HCl (C) HI (D) HF

28. The negative charge on As_2S_3 sol is due to adsorption of -
(A) H^- (B) OH^- (C) O^{2-} (D) S^{2-}

29. The ratio of diameter of atom and diameter of nucleus is of the order of -
(A) 10^5 (B) 10^3 (C) 10 (D) 10^{-1}

30. From 200 mg of CO_2, 10^{21} molecules are removed. How many moles of CO_2 are left ?
(A) 0.00166 (B) 0.00454 (C) 0.00288 (D) None of these

31. Electron microscope is more advantageous than light microscope because it
(A) requires no light (B) has higher magnification
(C) gives depth focus (D) uses vacuum.

32. Omnis cellula e cellula is generalisation given by :
(A) Lamarck (B) Dutrochet
(C) Leeuwenhoek (D) Virchow

33. Which cell organelle is abundantly found in white blood cells, secretory cells of liver, kidney, tadpole's tail and helps in degenerating action ?
(A) Mitochondria
(B) Golgi body
(C) Lysosome
(D) Endoplasmic reticulum

34. Kingdom monera includes.
(A) Algae (B) Bacteria (C) Fungi (D) All of the above.

35. The meristematic cells have
(A) thin walls (B) Active nucleus (C) absence of vacuoles (D) all of the above

Direction : (36 to 37) Find the missing term(s) —

36. 240, ? , 120, 40, 10, 2
(A) 120 (B) 240 (C) 40 (D) 10

37.

3	8	10	2	?	1
6	56	90	2	20	0

(A) 0 (B) 3 (C) 5 (D) 7

38. If '+' means 'subtraction', '÷' means 'addition', 'Λ' means 'less than', '–' means 'greater than', 'x' means 'equal to', '<' means 'multiplication', and '>' means 'division', then which of the following statements is true?
(A) $9 \Lambda 5 + 2 \div 4 > 12$
(B) $(9 + 5) \Lambda (2 < 4) > 2$
(C) $9 + 5 \div (2 < 4) \times 12$
(D) $9 < 5 - 2 \div (4 < 12)$

39. Five boys A,B,C,D and E are standing in a row. A is between C and D and B is between D and E. Which of the following pairs represents the boys standing at both the ends ?
(A) C,B (B) E,C (C) E,A (D) A,C

Space For Rough Work

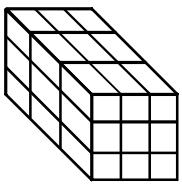
Directions : (40) Choose the odd one from the given four choices :.

40. (A) YB2 (B) XC3 (C) UF6 (D) GT5

41. Choose the Venn diagram which best describe the relationship among the three give classes (The size of circle does not indicate relative sizes of classes)
Doctor, Lawyer, Male

(A) (B) (C) (D)

42. Twenty seven cubes are arranged in a block as shown below. How many cubes are surrounded by other cubes on all sides ?



(A) 3 (B) 1 (C) 9 (D) 6

43. Number of letters skipped in between adjacent letters in the series is in the order of 1^2, 2^2, 3^2. Which of the following series observes the rule given above ?
(A) EGLV (B) GINQ (C) GINR (D) TVYB

Directions : (44 to 45) In the following questions some numbers are given in the shape of figures. Finding the values of the figures give the correct answer of the questions.

□ − △ = 1 ⬡ ÷ △ = 2
○ + △ = 3 □ − ○ = 4

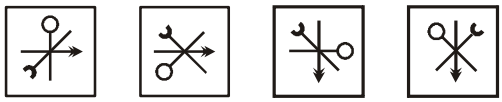
44. ⬡ + △ = ?
(A) 5 (B) 7 (C) 8 (D) 9

45. □ × ○ = ?
(A) 0 (B) 3 (C) 5 (D) 6

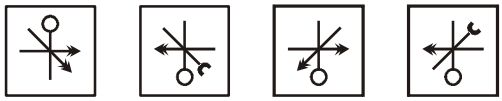
Space For Rough Work

Direction : (46) The following question consists of four figures . These figures form a series. Find out the one from the answer figures that will continue the series.

46. Question-figures

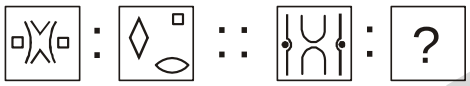


Answer-figures



(A) (B) (C) (D)

Direction : (47) The second figure in the first part of the problem figure bears a certain relationship to the first figure similarly one of the figure in answer figures bears the same relationship to the first figure in the second part. You have to select the figure from the set of answer figures which would replace the sign of questions mark.

47. 

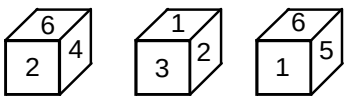
(A)  (B)  (C)  (D) 

48. How many triangles are there in the following figure ?

(A) 25 (B) 20 (C) 29 (D) None of these

49. A and B start from a fixed point .A moves towards North and after walking 3 Km turns to his right and covers 4 Km. B moves towards West and walks 5 Km and then turns to his right and walks 3 Km. Now how far are A and B from each other ?

(A) 1 Km (B) 5 Km (C) 8 Km (D) 9 Km

50. 

(i) (ii) (iii)

Which number is opposite to number 2 ?

(A) 4 (B) 6 (C) 5 (D) 3

ANSWER

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