INTO 10TH CBSE/ICSE

INSTRUCTIONS **NUMBER OF QUESTIONS : 100** **TIME : 2 Hrs**

1. ATTEMPT ALL QUESTIONS WITHIN THE TIME.
2. EACH QUESTION CARRIES 1 MARK
3. NO NEGATIVE MARKS.
4. DON'T DO ROUGH WORK ON QUESTION PAPER AND OMR.
5. USE BLACK (OR) BLUE PEN FOR BUBBLING ON OMR.

CORRECT METHOD OF BUBBLING

WRONG METHOD OF BUBBLING

MATHEMATICS

1. A rational number between $3\frac{1}{3}$ *and* $3\frac{2}{3}$ is

   1. 3 2. 4 3. $3\frac{1}{2}$ 4. $3\frac{4}{5}$

2. $\frac{21}{25} =$

   1. 0.84 2. 8.4 3. 0.084 4. 0.74

3. If $x+y=7, xy=12$ then $x^2+y^2=$

   1. 14 2. 15 3. 25 4. 16

4. $3+2\sqrt{5}$ is a

   1. A rational number 2. An integer 3. An irrational number 4. A whole number

5. $\sqrt{8+2\sqrt{15}}$

   1. $\sqrt{5}+\sqrt{3}$ 2. $\sqrt{5}-\sqrt{3}$ 3. $\sqrt{3}-\sqrt{5}$ 4. $\sqrt{3}+\sqrt{2}$

6. The degree of the polynomial $3x^4-2x^3+5x^2+7$

   1. 1 2. 2 3. 4 4. 3

7. If $p(x)=x^2-5x-6$ then P(1)=

   1. 1 2. 5 3. 10 4. -10

8. The remainder of $4x^2-8x+3$ when divided by $2x+3$ is

   1. 0 2. 8 3. -16 4. 24

9. If the remainder of the polynomial f(x) when divided by $x+1$ *and* $x-1$ are 7, 3 Then the reminder of f(x) when divided by x^2-1 is

   1. $3x+5$ 2. $2x+7$ 3. $2x+5$ 4. $-2x+5$

10. Which of the following is a polynomial?

    1. $2x^2-\frac{3}{x}+5$ 2. $5\sqrt{x}+2x$ 3. $x^2-\frac{1}{2}$ 4. $-\frac{1}{x+y}$

11. If $x+y+z=0$ then $x^3+y^3+z^3=$

    1. xyz 2. $2xyz$ 3. $3xyz$ 4. $4xyz$

12. How many dimensions of a sold has?

1. 1 2. 2 3. 3 4. 4

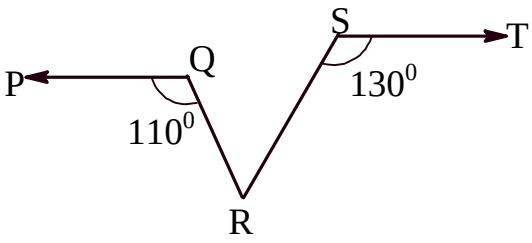
13. Every even number greater than 4 can be written as sum of two primes is a example of

1. Implication 2. Conjecture 3. Conditional 4. Conductor

14. Conjugate angle of 215^0 is

1. 145^0 2. 35^0 3. 135^0 4. 125

15. In the adjacent figure PQ//ST Then $\angle QRS$ =



1. 70^0 2. 50^0 3. 60^0 4. 100^0

16. If $x<0, y>0$ then $(-x,-y)$ belongs to

1. Q_1 2. Q_2 3. Q_3 4. Q_4

17. Which of the following point lie on $x-axis$?

1. (2, 0) 2. (-2, 0) 3. (3, 0) 4. All the above

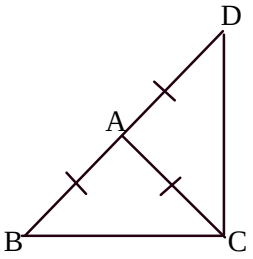
18. The equation $x-4y=5$ has

1. No solution 2. Unique solution 3. Two solutions 4. Infinitely many solution

19. In the adjacent figure $\angle BCD$ =

1. 90^0 2. 180^0

3. $60^{0`}$ 4. 120^0



20. In ΔABC if AB > AC Then

1. $\angle B < \angle C$ 2. $\angle B > \angle C$ 3. $\angle B = \angle C$ 4. $\angle A = \angle B$

21. If ABCD is a parallelogram then $\angle A - \angle C$ =

1. 90^0 2. 180^0 3. 60 4. 0^0

22. The upper boundary of the first class in the distribution 10 -20, 21-30 is

1. 20.5 2. 20 3. 21 4. 15

23. Which of the following is more consistent

1. Mode 2. Median 3. Mean 4. Range

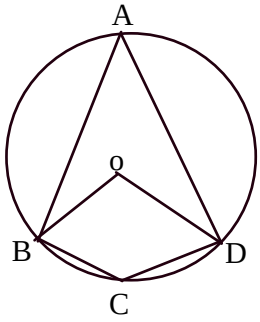
24. The horizontal cross section of a cone is

1. Circle 2. Right triangle 3. Isosceles triangle 4. Rectangle

25. In the adjacent figure 'o' is the centre and $\angle BOD = 120^0$ then $\angle BCD$ =

1. 60^0 2. 120^0

3. 90^0 4. 180^0



26. If $x \neq -1, y \neq -1$ and $x^3 + y^3 + 3xy = 1$ then

1. $x + y = 1$ 2. $x + y = -1$ 3. $x^2 + y^2 = 1$ 4. $(x + y)^2 = 1$

27. If medians of triangle are $3\sqrt{5}, 3\sqrt{5}, 3\sqrt{2}$ units Then area of the triangle is _____ sq units

1. 18 2. 36 3. 9 4. 10

28. Probability of getting 53 Sundays in a leap year is

1. $\frac{1}{7}$ 2. $\frac{2}{7}$ 3. $\frac{3}{7}$ 4. $\frac{5}{7}$

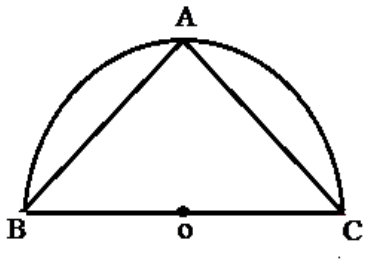
29. If $x > y > 0,\ x^2 + y^2 = 6xy$ then $\frac{x+y}{x-y}$ is equal to

1. $\sqrt{3}$ 2. $\sqrt{2}$ 3. $\frac{1}{\sqrt{2}}$ 4. $-\sqrt{2}$

30. In a square ABCD of side 6 units. P, Q are mid points of BC, CD respectively. The line segments BQ, DP intersect in 'R' then area of the quadrilateral ABRD is

1. 12 2. 24 3. 48 4. 36

31. In the adjacent figure diameter of semicircle is $\sqrt{2}$ units and AB = AC then area of ΔABC is _____ sq units

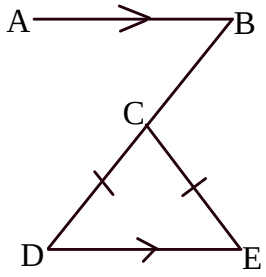


1. 1 2. $\frac{1}{2}$
3. 2 4. 4

32. If $x + \frac{1}{x} = 2$ *then* $x^{2017} + \frac{1}{x^{2017}} =$

1. 1 2. 0 3. 2 4. 2017

33. In adjacent figure $\angle ABC = 45^0$ then $\angle BCE =$



1. 60^0 2. 45^0 3. 90^0 4. 180^0

34. Class mark of 10-20 is

1. 10 2. 15 3. 20 4. 25

35. If diagonals of a rhombus are 3cm, 4cm Then its area is _____ sq cm

1. 12 2. 6 3. 18 4. 9

36. Volume of sphere

1. $\frac{2}{3}\pi r^3$ 2. $\pi r^2 h$ 3. $\frac{1}{2}\pi r^2 h$ 4. $\frac{4}{3}\pi r^3$

37. Equation of x axis is

1. $y = 0$ 2. $x = 0$ 3. $y = k$ 4. $x = k$

38. Angle in a semicircle is

1. 0^0 2. 60^0 3. 90^0 4. 120^0

39. Probability of impossible event is

1. $\frac{1}{2}$ 2. 1 3. 0 4. $-\frac{1}{2}$

40. If *a*, *b* are positive real numbers and $a+b=1$ then minimum value of a^4+b^4

1. $\frac{1}{2}$ 2. $\frac{1}{4}$ 3. $\frac{1}{8}$ 4. $\frac{1}{16}$

41. The length of equator on the globe is 88 cm, then r = ……..cm.

1. 12 2. 10 3. 16 4. 14

42. The base of prism is a triangle of sides 3 cm, 4cm and 5cm. Height of the prism is 10 cm, the LSA = ……..cm^2.

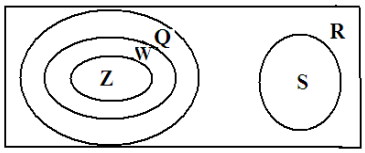
1. 110 2. 100 3. 160 4. 120

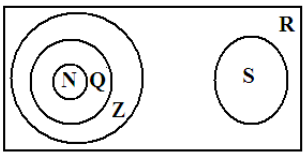
43. If the median of $\frac{a}{3},\frac{a}{2},\frac{a}{4},\frac{2a}{5},\frac{a}{6}$ is 12, then find the value a(a>0).

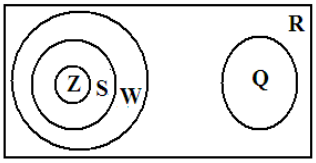
1. 36 2. 48 3. 30 4. 24

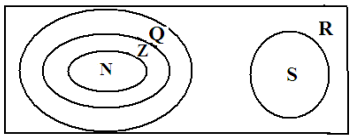
44. Which of the following is correct?

N = Natural numbers
W = Whole numbers
Z = integer
Q = rational numbers
S = irrationals
R = real numbers

1. 

2. 

3. 

4. 

45. $(x+2)(x+5)$= -------

1. $x^2+7x+10$ 2. $x^2-7x+10$ 3. $x^2+10x+7$ 4. $x^2-7x-10$

46. The angle between two hands of a clock when the time in the clock is 7:00 PM is _____

1. 360^0 2. 90^0 3. 0^0 4. 210^0

47. The figure formed by joining the mid points of sides of a rectangle is _____

1. Rhombus 2. Rectangle 3. Parallelogram 4. Square

48. If $a^x=\left(\frac{a}{k}\right)^y=k^m$ then $\frac{1}{x}-\frac{1}{y}=$

1. 0 2. 1 3. m 4. $\frac{1}{m}$

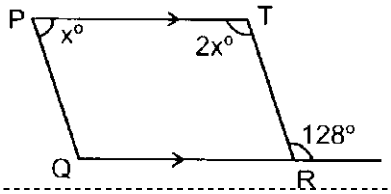
49. Each edge of a cube is increased by 50% then percentage increase in the surface area is _____

1. 125% 2. 2 times increased 3. Does not change 4. 50%

50. Which of the following is not a solution of the equation $2x - 5y = 10$

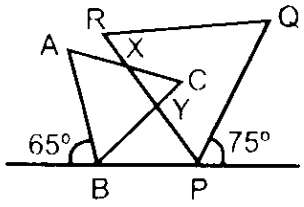
1. (0, -2) 2. (5, 0) 3. $(2\sqrt{3}, -\sqrt{3})$ 4. $\left(1, \frac{-8}{5}\right)$

51. In the given diagram, PT is parallel to QR. $\angle PQR$ is =



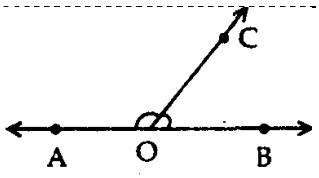
1. 116° 2. 138°
3. 144° 4. 120°

52. In the diagram if ΔABC and ΔPQR are equilateral. The $\angle CXY$ equals



1. 35° 2. 40° 3. 45° 4. 50°

53. In figure, OA and OB are opposite rays. If $\angle AOC$ = 110°, then $\angle BOC$ =

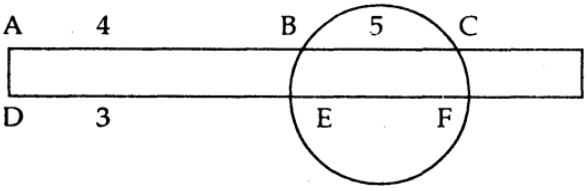


1. 60° 2. 70°
3. 80° 4. 90°

54. The angle which is complement of itself is

1. 90° 2. 60° 3. 45° 4. 30°

55. *A* rectangle intersects *a* circle as shown: AB=4, BC = 5 and DE = 3. Then EF equals



1. 4 2. .5 3. 6 4. 7

56. $\frac{1}{2} - \frac{1}{3} - \frac{1}{6} =$

1. $\frac{1}{2}$ 2. $\frac{1}{3}$ 3. $\frac{1}{6}$ 4. 0

57. $\frac{x^3 - 1}{x^2 + x + 1} =$

1. $x - 1$ 2. $x + 1$ 3. $x^2 - 1$ 4. 1

58. The R.F of $\frac{1}{\sqrt{27}}$ is

1. $\frac{1}{\sqrt{27}}$ 2. $\sqrt{27}$ 3. $\sqrt{3}$ 4. 3

59. $103 \times 97 =$

1. 9991 2. 9791 3. 10197 4. 9997

60. Median of first 10 natural numbers is _____

1. 6.5 2. 5.5 3. 5 4. 11.5

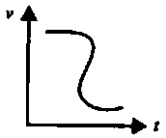
PHYSICS

61. The unit of surface tension may be expressed as:

1. Joule metre 2. Newton metre 3. Joule metre^{-2} 4. Newton metre^{-2}

62. The best method to reduce random error is
1. to change the instrument used for measurement
2. to take help of experienced observer
3. to repeat the experiment many times and to take the average results
4. none of the above

63. Which of the following velocity-time graphs shows a realistic situation for a body in motion?

1. 
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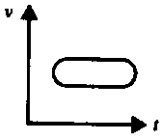
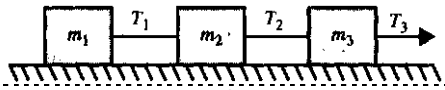
3. 
4. 

64. A person moves 30m north and 20m towards east and finally $30\sqrt{2}$ m in south-west direction. The displacement of the person from the origin will be
1. 10m along north 2. 10m along south 3. 10m along west 4. Zero

65. Three blocks are connected as shown in figure on a horizontal frictionless table. If m_1 = 1kg, m_2 = 8kg, m_3 = 27 kg and T_3 = 36N, T_2 will be
1. 18N 2. 9N
3. 3.375N 4. 1.75N



66. A body of mass 10kg moves at a constant speed of 10m/s. A constant force then acts for 4 second on the body and gives it a speed of 2 m/s in opposite direction. The force action on the body is
1. -30 N 2. -20 N 3. -10 N 4. -15 N

67. In a hydraulic lift at a service station, the radii of the large and small pistons are in the ratio of 20 : 1. What weight placed on the small piston will be sufficient to lift a car of mass 1200 kg?
1. 3 kgf 2. 30 kgf 3. 300 kgf 4. 3000 kgf

68. A tank full of liquid has an orifice 4.9 m below the surface level in the tank. The velocity of outcoming liquid is
1. 4.9 m s^{-1} 2. 9.8 m s^{-1} 3. 2×9.8 m s^{-1} 4. 4×9.8 m s^{-1}

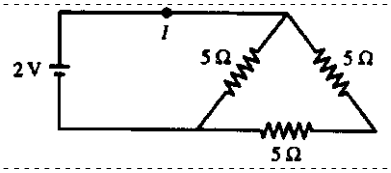
69. The ratio of the coefficient of thermal conductivity of two different materials is 5 : 3. If the thermal resistance of the rods of the same thickness of these materials is same, then the ratio of the length of these rods is
1. $\frac{3}{5}$ 2. $\frac{5}{3}$ 3. $\frac{2}{7}$ 4. $\frac{7}{2}$

70. On a hypothetical scale X, the ice point is 40^0 and the steam point is 120^0. For another scale Y, the ice point and steam point are -30^0 respectively. If X reads 50^0, then Y would read
1. -5^0 2. -8^0 3. -10^0 4. -12^0

71. The coefficients of apparent expansion of a liquid when determined using two different vessels A and B are γ_1 and γ_2 respectively. If the coefficient of linear expansion of the vessel A is α, the coefficient of linear expansion of the vessel B is:
1. $\frac{\alpha\gamma_1\gamma_2}{\gamma_1+\gamma_2}$ 2. $\frac{\gamma_1-\gamma_2}{2\alpha}$ 3. $\frac{\gamma_1-\gamma_2+\alpha}{3}$ 4. $\frac{\gamma_1-\gamma_2}{3}+\alpha$

72. When 10^{19} electrons are removed from a neutral metal plate, the electric charge on it is (coulomb)
1. 10^{+19} 2. +1.6 3. -1.6 4. $\frac{10q_1}{q_2}$

73. The current I in the given circuit is



1. $\frac{1}{45}$ A 2. $\frac{1}{15}$ A 3. $\frac{1}{10}$ A 4. $\frac{3}{5}$ A

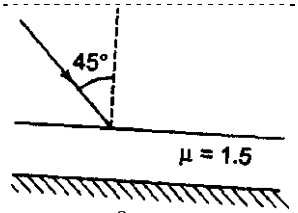
74. Two similar head light lamps are connected in parallel to each other. Together, they consume 48W from a 6V battery. What is the resistance of each filament?
1. 6Ω 2. 4Ω 3. 3.0Ω 4. 1.5Ω

75. An electron and proton enter a magnetic field perpendicularly. Both have same kinetic energy. Which of the following is true?
1. trajectory of electron is less curved 2. Trajectory of proton is less curved
2. both trajectories are equally curved 4. Both move on straight line path

76. A long magnet is cut in two parts in such a way that the ratio of their lengths is 2 : 1. Then ratio of pole strengths of both the section is
1. Equal 2. In the ratio of 2 : 1
3. In the ratio of 1 : 2 4. In the ratio of 4 : 2

77. A small object is placed 10 cm in front of a plane mirror. If you stand behind the object, 30 cm from the mirror and look at its image, for what distance must you focus your eyes?
1. 20 cm 2. 60 cm 3. 80 cm 4. 40 cm

78. One side of a glass slab is silvered as shown. A ray of light is incident on the other side at angle of incidence $i = 45^0$. Refractive index of glass is given as 1.5.
The deviation of the ray of light from its initial path when it comes out of the slab is



1. 90^0 2. 180^0 3. 120^0 4. 45^0

79. For stretched string, frequency is directly proportional to
1. Tension 2. $\sqrt{\text{tension}}$ 3. Mass/unit length 4. $\sqrt{\text{mass/unit length}}$

80. If 25 waves are produced per second, what is the frequency in hertz?
1. 25 Hz 2. 20Hz 3. 15Hz 4. 30Hz

CHEMISTRY

81. LPG stands for
1. Litre Petroleum Gas 2. Longitudinal Petroleum Gas
3. Latitudinal Petroleum Gas 4. Liquefied petroleum Gas

82. Hydrochloric acid and Ammonia react together and form a while substance called
1. Ammonium hydride 2. Ammonium hydroxide
3. Ammonium chloride 4. Nitric acid

83. The scattering of beam of light when light passes through a colloidal solution is
1. Raman effect 2. Crompton effect
3. Photo electric effect 4. Tyndall effect

84. Which reaction involves neither oxidation nor reduction
1. $CrO_4^{2-} \rightarrow Cr_2O_7^{2-}$ 2. $Cr \rightarrow CrCl_3$ 3. $Na \rightarrow Na^+$ 4. $2S_2O_3^{2-} \rightarrow S_4O_6^{2-}$

85. Match the following.

a) Calcium nitrate	i) HNO_3
b) Nitric acid	ii) $(NH_4)_3PO_4$
c) Ammonium Chloride	iii) $Ca(NO_3)_2$
d) Ammonium phosphate	iv) NH_4Cl

1. a→iii, b→i, c→iv, d→ii 2. a→i, b→ii, c→iii, d→iv
3. a→ii, b→iii, c→iv, d→I 4. a→iv, b→i, c→ii, d→iii

86. Number of moles of 22g of carbon dioxide is
1. 1 2. 0.25 3. 0.75 4. 0.5

87. The isotope of _____ is used in treatment of cancer.
1. Iron 2. Sodium 3. Iodine 4. Cobalt

88. Rutherford allowed the alpha particles to pass through _____in his alpha particles scattering experiment.
1. Aluminium foil 2. Silver foil 3. Copper foil 4. Gold foil

89. The types of bonds present in $CuSO_4.5H_2O$ are only
1. Electrovalent and covalent
2. Electrovalent and coordinate
3. Electrovalent, covalent and coordinate covalent
4. Covalent and coordinate covalent

90. Two samples of lead oxide were separately reduced to metallic lead by heating in a current of hydrogen. The weight of lead from one oxide was half the weight of lead obtained from the other oxide. The data illustrate
1. Law of reciprocal proportions
2. Law of constant proportions
3. Law of multiple proportions
4. Law of equivalent proportions

91. 5.6 litres of a gas at N.T.P are found to have a mass of 11g. The molecular mass of the gas is
1. 22 2. 44 3. 88 4. 32

92. Boron has two stable isotopes, ^{10}B (19%) and ^{11}B (81%). The atomic mass that should appear for boron in the periodic table is
1. 10.8 2. 10.2 3. 11.2 4. 10.0

93. A gas mixture contains 50% helium and 50% methane by volume. What is the percent by weight of methane in the mixture?
1. 19.97 % 2. 20.05 % 3. 50 % 4. 80.03 %

94. Which one of the following pairs of ions have the same electronic configuration?
1. Cr^{3+}, Fe^{3+} 2. Fe^{3+}, Mn^{2+} 3. Fe^{3+}, Co^{3+} 4. Sc^{3+}, Cr^{3+}

95. An element M has an atomic mass 19 and atomic number 9. Its ion is represented by
1. M^+ 2. M^{2+} 3. M^- 4. M^{2-}

96. The energy of the second Bohr orbit of the hydrogen atom is -328 kJ mol^{-1}; hence the energy of fourth Bohr orbit would be
1. -1312 kJ mol^{-1} 2. -82 kJ mol^{-1} 3. -41 kJ mol^{-1} 4. -164 kJ mol^{-1}

97. Which one of the following sets of ions represents a collection of isoelectronic species?
1. N^{3-}, O^{2-}, F^-, S^{2-}
2. Li^+, Na^+, Mg^{2+}, Ca^{2+}
3. K^+, Cl^-, Ca^{2+}, Sc^{3+}
4. Ba^{2+}, Sr^{2+}, K^+, Ca^{2+}

98. In the chemical reaction, $K_2Cr_2O_7 + XH_2SO_4 + YSO_2 \rightarrow K_2SO_4 + Cr_2(SO_4)_3 + ZH_2O$
X , Y and Z are
1. 1, 3, 1 2. 4, 1, 4 3. 3, 2, 3 4. 2, 1, 2

99. 80 ml of solution contains 20gm of solute. The concentration in terms of mass by volume percentage of the solution
1. 20% 2. 30% 3. 25% 4. 40%

100. Which of the following is example for Gas-solid type of colloid
1. Soap lather 2. Fog 3. Hair cream 4. Foam rubber

THE END