

**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

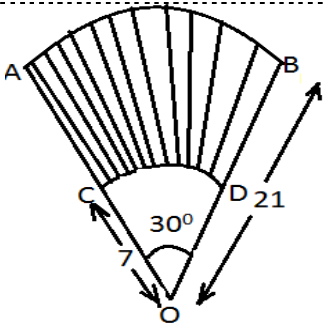


WRONG METHOD OF BUBBLING

**MATHEMATICS**

1. The ratio in which the  $y$  – axis divides the line segment joining the points  $(5, -6)$  and  $(-1, -4)$  is \_\_\_\_\_  
 1.  $1 : 5$                       2.  $-1 : 5$                       3.  $5 : 1$                       4.  $-5 : 1$
2. A right circular cylinder has base radius 14cm and height 21cm the volume of the cylinder is  
 1.  $616\text{cm}^2$                       2.  $1848\text{cm}^2$                       3.  $3080\text{cm}^2$                       4.  $12936\text{cm}^2$
3. Two cards are drawn from a pack. The probability that one of them is a club and the other is not a club is  
 1.  $\frac{1}{36}$                       2.  $\frac{5}{108}$                       3.  $\frac{26}{51}$                       4.  $\frac{13}{34}$
4. What is the smallest number that leaves the remainder 7 when divided by 35, 56 and 91 is \_\_\_\_\_  
 1. 3467                      2. 6437                      3. 4736                      4. 3647
5. If  $A(5, +2), B(2, -2)$  and  $C(-2, t)$  are the vertices of a right angled triangle and  $\angle B = 90^\circ$  then radius of circum circle of triangle is \_\_\_\_\_  
 1.  $5\sqrt{3}$                       2.  $3\sqrt{5}$                       3.  $5\sqrt{2}$                       4.  $2\sqrt{5}$
6. If  $\operatorname{cosec}\theta + \cot\theta = K$  then  $\frac{k^2 - 1}{k^2 + 1} =$  \_\_\_\_\_  
 1.  $\sin\theta$                       2.  $\cos\theta$                       3.  $\sec\theta$                       4.  $\operatorname{cosec}\theta$

7. The remainder of  $3x^3 + x^2 + 2x + 5$  is divided by  $1 + 2x + x^2$  is \_\_\_\_\_  
 1.  $9x - 10$                       2.  $9x + 10$                       3.  $10x - 9$                       4.  $10x + 9$
- 
8. The roots of  $x^2(a^2 + b^2) + 2x(ac + bd) + c^2 + d^2 = 0$  are  
 1. Real and unequal                      2. Rational and unequal  
 3. Real and equal                      4. No real roots
- 
9. If the sum of the squares of zeroes of the quadratic polynomial  $f(x) = x^2 - 8x + k$  is 40, then the value of K is  
 1. 10                      2. 11                      3. 12                      4. 13
- 
10. Volume of the frustum of the cone with  $r_1, r_2$  are radii of ends of frustum is \_\_\_\_\_  
 1.  $\frac{1}{3}\pi h(r_1^2 + r_2^2 - r_1r_2)$                       2.  $\frac{1}{3}\pi h^2(r_1^2 + r_2^2 + r_1r_2)$   
 3.  $\frac{1}{3}\pi h(r_1 + r_2 + r_1r_2)$                       4.  $\frac{1}{3}\pi h(r_1^2 + r_2^2 + r_1r_2)$
- 
11. If  $f(x) = 2x^2 + 8x - 3$  then  $f\left(\frac{-5}{2}\right) = -$   
 1. -21                      2. 21                      3.  $-\frac{21}{2}$                       4.  $\frac{21}{2}$
- 
12. A cone of height 24cm and radius of base 6cm is made up of modelling clay. A child reshapes it in the form of a sphere then the radius of the sphere is \_\_\_\_\_  
 1. 4                      2. 5                      3. 6                      4. 8
- 
13. The value of K for which the equations  $5x + 2y = k$  and  $10x + 4y = 3$  has infinitely many solutions is  
 1. 3                      2.  $\frac{2}{3}$                       3. 2                      4.  $\frac{3}{2}$
- 
14. If  $f(x) = ax^2 + bx + c$  has no real zeros and  $a + b + c < 0$  then  
 1.  $c = 0$                       2.  $c > 0$                       3.  $c < 0$                       4. All the three
- 
15. ABCD is a cyclic quadrilateral such that  $\angle A = (4y + 20)^\circ, \angle B = (3y - 5)^\circ, \angle C = (4x)^\circ$  and  $\angle D = (7x + 5)^\circ$  then  $\angle C =$  \_\_\_\_\_  
 1.  $30^\circ$                       2.  $45^\circ$                       3.  $60^\circ$                       4.  $90^\circ$
- 
16. The number of quadratic equations having real roots and which so not change by squaring their roots is  
 1. 1                      2. 2                      3. 3                      4. 4

17. The pair of linear equations  $a_1x + b_1y + c_1 = 0$  and  $a_2x + b_2y + c_2 = 0$  is inconsistent then
1.  $\frac{a_1}{a_2} \neq \frac{b_1}{b_2}$       2.  $\frac{a_1}{a_2} = \frac{b_1}{b_2} \neq \frac{c_1}{c_2}$       3.  $\frac{a_1}{a_2} \neq \frac{b_1}{b_2} \neq \frac{c_1}{c_2}$       4.  $\frac{a_1}{a_2} = \frac{b_1}{b_2} = \frac{c_1}{c_2}$
- 
18. In the series 5, 11, 17, 23.....50<sup>th</sup> term is \_\_\_\_\_
1. 298      2. 299      3. 301      4. 303
- 
19. The length of a tangent drawn to a circle with radius 5cm from a point 13cm from the centre of a circle is \_\_\_\_\_
1. 13      2. 5      3. 12      4.  $\sqrt{194}$
- 
20. If 100 times the 100<sup>th</sup> term of an A.P with non zero common difference is equal to 50 times its 50<sup>th</sup> term then 150<sup>th</sup> term of this AP is \_\_\_\_\_
1. 150      2. 0      3. -150      4. 250
- 
21. If the distance between the points (4, p) and (1, 0) is 5 then p= \_\_\_\_\_
1.  $\pm 4$       2.  $\pm 5$       3. 4      4. -4
- 
22. If  $\sec \theta = \frac{13}{12}$  then  $\tan \theta =$  \_\_\_\_\_
1.  $\frac{12}{5}$       2.  $\frac{13}{5}$       3.  $\frac{5}{12}$       4.  $\frac{12}{13}$
- 
23. In the diagram AB and CD are arc's two concentric circles of radii 21cm and 7cm and centre O then the area of shaded region ( $\angle AOB = 30^\circ$ )
- 
1.  $\frac{308}{3} \text{ cm}^2$       2.  $\frac{208}{3} \text{ cm}^2$       3.  $308 \text{ cm}^2$       4.  $208 \text{ cm}^2$
- 
24. If the points (6, 1)(8, 2), (9, 4) (P, 3) are the vertices of a parallelogram taken in that order then P = \_\_\_\_\_
1. 6      2. 7      3. 8      4. 9
- 
25. Area of  $\Delta^{le}$  formed with the vertices (1, -1)(-4, 6)and (-3, -5) is \_\_\_\_\_
1. 24      2. 36      3. 48      4. 12
- 
26. As observed from the top of a light house 100m above the sea level, the angle of depression of a ship, sailing directly towards it, changes from  $30^\circ$  to  $45^\circ$  the distance travelled by ship during the period of observation
1.  $100(\sqrt{3} + 1)$       2.  $100(\sqrt{3} - 1)$       3.  $100\sqrt{3}$       4. 100

27. If  $A + B = 90^\circ$  then  $\frac{\tan A \cdot \tan B + \tan A \cot B}{\sin A \sec B} - \frac{\sin^2 B}{\cos^2 A}$  is equal to

1.  $\cot^2 A$                       2.  $\cot^2 B$                       3.  $-\tan^2 A$                       4.  $-\cot^2 A$

28. Total surface area of a hemisphere is \_\_\_\_\_

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

29. HCF of 306,657 is 9 then LCM=\_\_\_\_\_

1. 2718                      2. 22338                      3. 5913                      4. 963

30. If 7<sup>th</sup> term of an AP is  $\frac{1}{9}$  and its 9<sup>th</sup> term is  $\frac{1}{7}$  then 63<sup>rd</sup> term is \_\_\_\_\_

1. 1                      2. 2                      3.  $\frac{47}{63}$                       4.  $\frac{63}{47}$

31. Which of the following rational number have terminating decimal?

1.  $\frac{2}{21}$                       2.  $\frac{7}{250}$                       3.  $\frac{5}{18}$                       4.  $\frac{16}{225}$

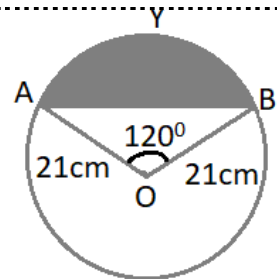
32. One card is selected at random from a pack of 52 playing cards then the probability that the card is face card is \_\_\_\_\_

1.  $\frac{5}{13}$                       2.  $\frac{3}{13}$                       3.  $\frac{4}{13}$                       4.  $\frac{7}{13}$

33. The probability of an impossible event is \_\_\_\_\_

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

34. Find the shaded area between arc AYB and chord AB



1.  $\frac{21}{4}(88 - 21\sqrt{3})\text{cm}^2$                       2.  $\frac{21}{4}(88 + 21\sqrt{3})\text{cm}^2$   
 3.  $\frac{21}{5}(88 - 21\sqrt{3})\text{cm}^2$                       4.  $\frac{21}{5}(88 + 21\sqrt{3})\text{cm}^2$

35. Find the roots of the equation  $x - \frac{1}{3x} = \frac{1}{6}$

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

36. In a family of 3 children the probability of having three boys is

1.  $\frac{7}{8}$                       2.  $\frac{1}{8}$                       3.  $\frac{5}{8}$                       4.  $\frac{3}{4}$

37. If  $\frac{2}{x} + \frac{3}{y} = 13$  and  $\frac{5}{x} - \frac{4}{y} = -2$  then  $(x, y) =$  \_\_\_\_\_

1.  $\left(\frac{1}{3}, \frac{1}{2}\right)$                       2.  $(3, 2)$                       3.  $\left(\frac{1}{2}, \frac{1}{3}\right)$                       4.  $(2, 3)$

38. While covering a distance of 30km Prasad takes 2 hours more than Pramod. If Prasad doubles his speed, he would take 1 hour less than Pramod, then their speeds are

1.  $5, \frac{15}{2}$                       2.  $3, \frac{9}{2}$                       3.  $4, \frac{15}{2}$                       4.  $6, \frac{11}{2}$

39. 5 pencils and 7 pens together cost 50 rupees where as 7 pencils and 5 pens cost 46 Rupees then cost of one pencil is \_\_\_\_\_

1. 3                      2. 4                      3. 5                      4. 2

40. Product of the roots of the equation  $5x^2 - 6x - 2 = 0$  is

1.  $\frac{6}{5}$                       2.  $-\frac{6}{5}$                       3.  $\frac{2}{5}$                       4.  $-\frac{2}{5}$

41. Relation among mean, median and mode is

1. Mode = 2 Median - 3 Mean                      2. Mode = 3 Median - 2 Mean  
3. Mode = 2 Median + 3 Mean                      4. Mode = 3 Median + 2 Mean

42.  $\sin^2 72^\circ + \sin^2 18^\circ =$  \_\_\_\_\_

1.  $\frac{3+\sqrt{5}}{8}$                       2.  $\frac{3-\sqrt{5}}{8}$                       3.  $\frac{10-2\sqrt{5}}{8}$                       4. 1

43. The length of a rectangle is twice its breadth and the area is  $800\text{m}^2$  then its length and breadths are

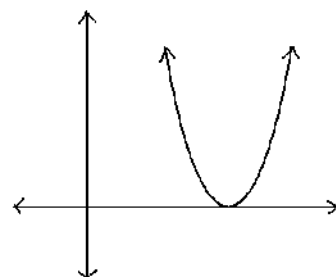
1. 40, 20                      2. 20, 40                      3. 60, 30                      4. 32, 16

44. Mean of n observations is  $\bar{x}$ . If each of these n observations is increases by 2,4,6,8,...n respectively, then which of the following is the new mean?

1.  $\bar{x} + \frac{n+1}{2}$                       2.  $\bar{x} + n + 1$                       3.  $\bar{x} + 1$                       4.  $\bar{x} + \frac{n}{2}$

45. From the graph the roots of the quadratic equation are

1. Two distinct real roots                      2. Equal real roots  
3. No real roots                      4. We cannot say



46. Sum of 20 terms of  $3 + 5 + 7 + 9 + \dots$  is

1. 410                      2. 440                      3. 460                      4. 220

47. If the points  $(K, 2K)$ ,  $(3K, 3K)$  and  $(3, 1)$  are collinear then  $K =$  \_\_\_\_\_

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

48.  $3\sin\theta = 2\cos\theta$  then  $\frac{\cos\theta - \sin\theta}{\cos\theta + \sin\theta} =$  \_\_\_\_\_

1.  $\frac{4}{9}$                       2.  $\frac{2}{\sqrt{13}}$                       3.  $\frac{1}{5}$                       4.  $\frac{4}{5}$

49. If A and B are  $(-2, -2)$  and  $(2, -4)$  and the coordinates of P such that

$AP = \frac{3}{7} AB$  is (P lies on AB)

1.  $\left(-\frac{3}{7}, \frac{15}{7}\right)$                       2.  $\left(\frac{4}{7}, \frac{8}{7}\right)$                       3.  $\left(-\frac{4}{7}, -\frac{20}{7}\right)$                       4.  $\left(-\frac{2}{7}, -\frac{20}{7}\right)$

50. In what ratio does the point  $(-4, 6)$  divide the line segment joining the points  $(-6, 10)$  and  $(3, -8)$  is \_\_\_\_\_

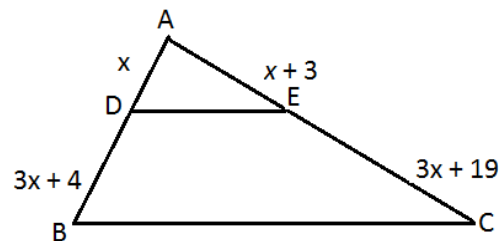
1.  $7 : 2$                       2.  $-7 : 2$                       3.  $-2 : 7$                       4.  $2 : 7$

51.  $1 + 2 + 3 + \dots + 100 =$

1. 5005                      2. 5505                      3. 5050                      4. 5555

52. From the diagram, If  $DE \parallel BC$  then  $x =$  \_\_\_\_\_

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



53. How many terms are to be added to make the sum 52 in the series  $(-8) + (-6) + (-4) + \dots$ ?

1. 3                      2. 13                      3. 12                      4. 31

54. The number of tangents passes through the point on the circle is (are) \_\_\_\_\_

1. 0                      2. 1                      3. 2                      4. Infinite

55. If  $\sin(A - B) = \frac{1}{2}$  and  $\cos(A + B) = \frac{1}{2}$   $0 \leq A + B \leq 90^\circ$ ,  $A > B$  then  $(A, B) =$  \_\_\_\_\_

1.  $(60, 45)$                       2.  $(45, 30)$                       3.  $(45, 15)$                       4.  $(60, 30)$

56. A round balloon of radius  $r$  subtends an angle  $\alpha$  at the eye of the observer while the angle of elevation of its centre is  $\beta$ . Then the height of the centre of the balloon is \_\_\_\_\_

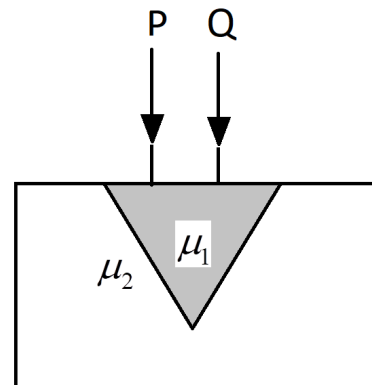
1.  $r \sin \beta \cos \alpha$                       2.  $r \operatorname{cosec} \alpha \sin \beta$                       3.  $r \operatorname{cosec} \alpha / 2 \sin \beta$                       4.  $r \sec \alpha / 2 \cos \beta$

57. If the mean of  $x, x+3, x+6, x+9$  and  $x+12$  is 10 then  $x =$
1. 1                                      2. 2                                      3. 6                                      4. 4
- 
58. In the experiment of tossing two coins. The probability of getting two tails
1.  $\frac{1}{2}$                                       2.  $\frac{1}{3}$                                       3.  $\frac{1}{4}$                                       4. 1
- 
59. If  $\alpha, \beta, \gamma$  are the zero's of the polynomial  $f(x) = ax^3 + bx^2 + cx + d$  then  $\frac{1}{\alpha} + \frac{1}{\beta} + \frac{1}{\gamma} =$
1.  $\frac{c}{a}$                                       2.  $-\frac{c}{d}$                                       3.  $-\frac{b}{d}$                                       4.  $-\frac{a}{b}$
- 
60. If  $\sin \alpha + \operatorname{cosec} \alpha = 2$  then  $\sin^4 \alpha + \operatorname{cosec}^4 \alpha =$  \_\_\_\_\_
1. 16                                      2. 2                                      3. 4                                      4. 8

### PHYSICS

61. A spherical mirror and a thin spherical lens have each a focal length of -15cm. The mirror and the lens are likely to be
1. Both concave
  2. Both convex
  3. The mirror is concave and the lens is convex
  4. The mirror is convex, but the lens is concave
- 
62. Which of the following lenses would you prefer to use while reading small letters found in a dictionary?
1. A convex lens of focal length 50cm
  2. A concave lens of focal length 5cm
  3. A convex lens of focal length 5cm
  4. A concave lens of focal length 5cm

63. Consider a glass slab of refractive index  $\mu_2$ . An equilateral prism is cut from the slab as shown in figure. This space is filled by liquid of refractive index  $\mu_1$ . Two narrow beams P and Q are incident as shown in figure. The angle between two emergent beams is  $\theta$  select incorrect statement.



1. If  $\mu_1 = 1$  and  $\mu_2 = \sqrt{3}$  then  $\theta = 120^\circ$
2. If  $\mu_1 = \frac{4}{\sqrt{3}}$  and  $\mu_2 = \sqrt{4}$  then  $\theta = 180^\circ$
3. If  $\mu_1 = \frac{2}{\sqrt{3}}$  and  $\mu_2 = 2$  then  $\theta = 90^\circ$
4. If  $\mu_1 = \mu_2$  then  $\theta = 0^\circ$

64. A 2.0cm tall object is placed perpendicular to the principal axis of a convex lens of focal length 10cm. The distance of the object from the lens is 15cm. find the, position of the image and its magnification.

1. 30cm, 2      2. 30cm, -2      3. -30cm, -2      4. 60cm, -2

65. An object, 4.0cm in size, is placed at 25.0cm in front of a concave mirror of focal length 15.0cm. At what distance from the mirror should a screen be placed in order to obtain a sharp image? Find the nature of the image.

1. 37.5cm, real      2. 47.5cm, virtual      3. -37.5cm, real      4. -47.5cm, virtual

66. An isosceles glass prism has one of its equal faces coated with silver. A ray is normally incident on the other face and is reflected twice and then emerges perpendicularly. Find the angles of prism.

1.  $45^\circ, 45^\circ, 90^\circ$       2.  $36^\circ, 72^\circ, 72^\circ$       3.  $40^\circ, 70^\circ, 70^\circ$       4.  $32^\circ, 74^\circ, 74^\circ$

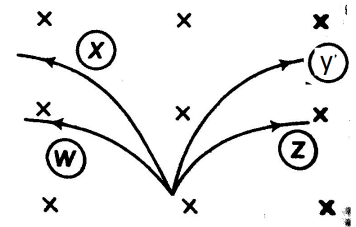
67. The human eye can focus on objects at different distances by adjusting the focal length of the eye lens. This is due to

1. Presbyopia      2. Accommodation  
3. Near-sightedness      4. Far-sightedness

68. The far point of a myopic person is 80cm in front of the eye. What is the nature and power of the lens required to correct the problems?

1. Concave lens, -1.25D      2. Convex lens, 1.25D  
3. Concave lens, 2.25D      4. Convex lens, -2.25D

69. Four charged particles,  $(-q, m), (-3q, 4m), (+q, m)$  and  $(+2q, m)$  enter in uniform magnetic field (in inward direction) with same kinetic energy as shown in figure. Inside the magnetic field their paths are shown. Match the following two columns.



	Column -I		Column -II
a)	Particle $(-q, m)$	p)	w
b)	Particle $(-3q, 4m)$	q)	x
c)	Particle $(+q, m)$	r)	y
d)	Particle $(+2q, m)$	s)	z

1.  $a \rightarrow s, b \rightarrow r, c \rightarrow q, d \rightarrow p$       2.  $a \rightarrow r, b \rightarrow s, c \rightarrow p, d \rightarrow q$   
3.  $a \rightarrow p, b \rightarrow q, c \rightarrow s, d \rightarrow r$       4.  $a \rightarrow r, b \rightarrow s, c \rightarrow q, d \rightarrow p$

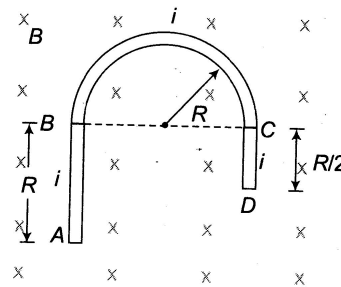
70. The potential difference between the terminals of an electric heater is 60 V when it draws a current of 4A from the source. What current will the heater draw if the potential difference is increased to 120V?

1. 4A      2. 6A      3. 8A      4. 10A



71. Two conducting wires of the same material and of equal lengths and equal diameter are first connected in series and then parallel in a circuit across the same potential difference. The ratio of heat produced in series and parallel combinations would be
1. 1 : 2                      2. 2 : 1                      3. 1 : 4                      4. 4 : 1

72. The current flows in the wire from A to D clockwise direction. The net force on ABCD



1.  $\frac{\sqrt{17}}{2} BiR$                       2.  $\frac{\sqrt{15}}{2} BiR$                       3.  $\frac{\sqrt{13}}{2} BiR$                       4.  $BiR$

73. Which of the following terms does not represent electrical power in a circuit?

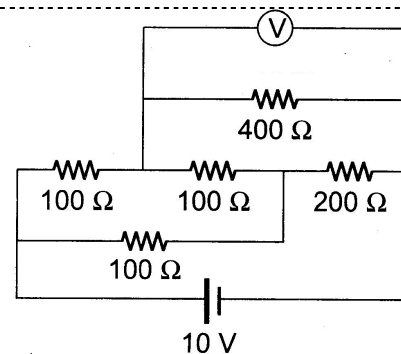
1.  $I^2R$                       2.  $IR^2$                       3.  $VI$                       4.  $V^2 / R$

74. Choose the correct option.

The magnitude field inside a long straight solenoid – carrying current

1. Is zero  
 2. Decreases as we move towards its end  
 3. Increases as we move towards its end  
 4. Is the same at all points

75. An electrical circuit is shown figure. Calculate the potential difference across the resistor of  $400 \Omega$ , as will be measured by the voltmeter V of resistance  $400 \Omega$ , either by applying Kirchhoff's rules or otherwise



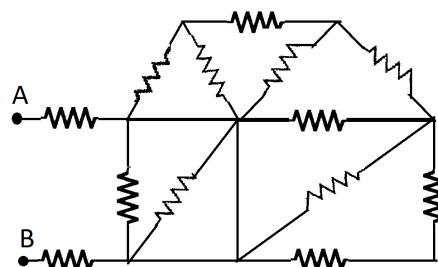
1.  $\frac{10}{3}V$                       2. 20V                      3.  $\frac{20}{3}V$                       4. 10V

76. A positively – charged particle (alpha-particle) projected towards west is deflected towards north by a magnetic field. The direction of magnetic field is

1. Towards south    2. Towards east    3. Downward    4. Upward

77. Which of the following correctly describes the magnetic field near a long straight wire?
1. The field consists of straight lines perpendicular to the wire
  2. The field consists of straight lines parallel to the wire.
  3. The field consists of radial lines originating from the wire.
  4. The field consists of concentric circles centred on the wire

78. In the given circuit all resistances are of value R ohm each. The equivalent resistance between A and B is:

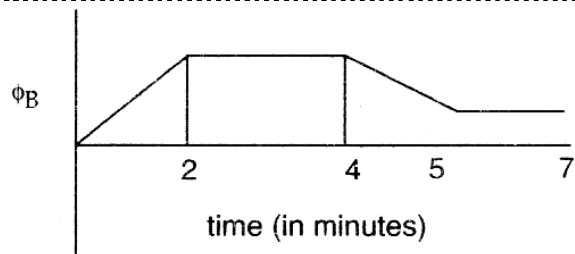


1.  $\frac{4R}{2}$
2.  $\frac{5R}{2}$
3.  $\frac{5R}{3}$
4.  $\frac{3R}{2}$

79. Which of the following is not an example of a bio-mass energy source?

1. Wood
2. Gobar – gas
3. Nuclear energy
4. Coal

80. This curve shows the relation between  $\phi_B$  and time (t). At which time interval e.m.f is not induced in the loop?



1. 2 to 4
2. 4 to 5
3. 5 to 7
4. Both 1 and 3

### CHEMISTRY

81. Heating  $Pb(NO_3)_2$  gives two gases 'X' and 'Y'. The colour of X and Y is

1. X = Colourless, Y = Colourless
2. X = Red , Y = Brown
3. X = Brown, Y = Colourless
4. X = Green, Y = Yellow

82. Which of the following is not a redox reaction?

1.  $AgNO_3 + NaCl \rightarrow AgCl + NaNO_3$
2.  $CuO + H_2 \rightarrow Cu + H_2O$
3.  $Mg + Cl_2 \rightarrow MgCl_2$
4.  $MnO_2 + 4HCl \rightarrow MnCl_2 + 2H_2O + 2Cl_2$

83. Identify the increasing order of reactivity of metals.

1.  $Cu < Hg < Zn < Ca$
2.  $Hg < Cu < Ca < Zn$
3.  $Hg < Cu < Zn < Ca$
4.  $Zn < Hg < Cu < Ca$

84. Which of the following is the reason for the bluish – green colour solution, when copper oxide reacts with dilute HCl?

1. CuCl                      2. CuCl<sub>2</sub>                      3. CuCl<sub>3</sub>                      4. CuCl<sub>4</sub>

85. The compound formed when Al<sub>2</sub>O<sub>3</sub> reacts with NaOH is

1. Na<sub>2</sub>Al(OH)<sub>3</sub>              2. Na<sub>3</sub>AlO<sub>3</sub>                      3. Al(OH)<sub>3</sub>. Na<sub>2</sub>O<sub>2</sub>      4. NaAlO<sub>2</sub>

86. One of the following substances is not added to make denatured alcohol. This is

1. Methyl alcohol      2. Copper sulphate      3. Chloroform              4. Pyridine

87. In a soap micelle, the soap molecule are arranged radially with

1. Ionic ends directed towards the centre and hydrocarbon ends directed outwards
2. Hydrocarbon ends directed towards the centre and ionic ends directed outwards
3. Both ionic ends and hydrocarbon ends directed towards the centre
4. Both hydrocarbon ends and ionic ends directed outwards

88. Match the following

	Natural source	Acid
a)	Tamarind	1. Methanoic acid
b)	Tomato	2. Oxalic acid
c)	Nettle sting	3. Citric acid
d)	Lemon	4. Tartaric acid

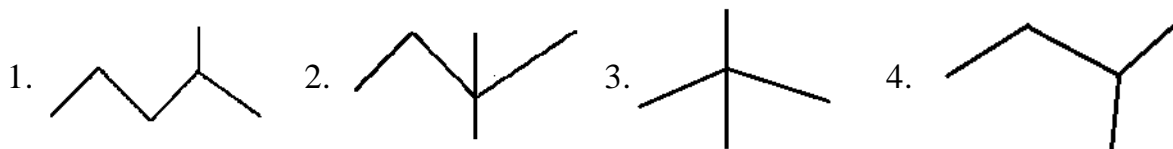
1. a – 2 , b – 1 , c - 3 , d – 4

2. a – 4 , b – 2 , c - 1 , d – 3

3. a – 4 , b – 2 , c - 3 , d – 1

4. a – 4 , b – 3 , c - 1 , d – 2

89. Which of the following compounds exhibits highest Boiling point?



90. The ratio of hybrid and pure orbitals in benzene

1. 2 : 3                      2. 3 : 2                      3. 1 : 6                      4. 3 : 1

91. What weight of sulphuric acid will be required to completely dissolve 3g of magnesium carbonate? Calculate the volume of carbon dioxide evolved as STP.

1. 4.5, 200ml              2. 6.5, 500ml                      3. 3.5, 800ml                      4. 9.5, 100ml

92. The following composition represents the aqua regia

1. 3 parts of conc HCl and 1 part of conc H<sub>2</sub>SO<sub>4</sub>
2. 3 parts of conc HCl and 2 parts of conc H<sub>2</sub>SO<sub>4</sub>
3. 3 parts of conc HCl and 1 part of conc HNO<sub>3</sub>
4. 3 parts of conc HCl and 2 parts of conc HNO<sub>3</sub>

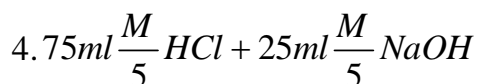
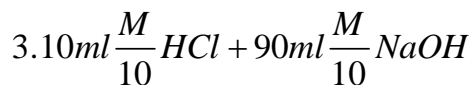
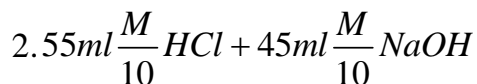
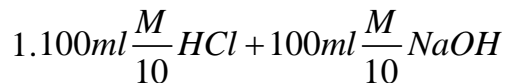
93. The organic compound used in medicines such as tincture of Iodine, cough syrups, and tonics is

1. CH<sub>3</sub>CH<sub>2</sub>COOH      2. CH<sub>3</sub>COOH                      3. CH<sub>3</sub>CH<sub>2</sub>OH                      4. CH<sub>3</sub>CH<sub>2</sub>CHO

94. Which of the following is true about the electrolytic refining of metals?

1. Impure metal is anode
2. Strip of pure metal is cathode
3. Soluble salt of metal is taken as electrolyte
4. All the above

95. Which of the following mixture solutions has  $\text{pH} = 1.0$ ?



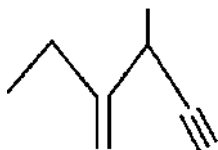
96. The formula of oxide and chloride of Eka-Silicon is

1.  $\text{ESO}_2, \text{ESCl}_2$       2.  $\text{ES}_2\text{O}_3, \text{ESCl}_4$       3.  $\text{ESO}_2$  &  $\text{ESCl}_4$       4.  $\text{ESO}, \text{ESCl}$

97. Identify the correctly matched set among the following.

1. Scandium-d-block-representative element
2. Lanthanum-d-block-inner transition element
3. Cerium-f-block-transition element
4. Actinium-d-block-transition element

98. The IUPAC name of



1. 2-ethyl 3-methyl -1-pentene 4-yne
2. 2-ethyl-3-methyl 4-pentyn 1-ene
3. 4-ethyl 3-methyl-1-pentyne-4-yne
4. 4-thyl-3-methyl-4-pentene 1-yne

99. The nature of aqueous solution of copper sulphate is

1. Neutral      2. Acidic      3. Basic      4. Both 2 & 3

100. There are four elements 'p', 'q', 'r' and 's' having atomic numbers  $Z-1$ ,  $Z$ ,  $Z+1$  and  $Z+2$  respectively. If the element 'q' is an inert gas, select the correct answers from the following statements.

- i) 'p' has most negative electron gain enthalpy in the respectively period
- ii) 'r' is an alkali metal
- iii) 's' exists in +2 oxidation state.

1. (i) and (ii)      2. (ii) and (iii)      3. (i) and (iii)      4. (i), (ii) and (iii)

**THE END**