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

INTO 10TH CLASS ICSE

MATHEMATICS

1. Simplify $\left(3+\sqrt{3}\right)\left(3-\sqrt{3}\right)$

   1) 3 2) 4 3) 0 4) 6

2. The value of $\frac{1}{3-\sqrt{8}}-\frac{1}{\sqrt{8}-\sqrt{7}}-\frac{1}{\sqrt{6}-\sqrt{5}}+\frac{1}{\sqrt{5}-2}+\frac{1}{\sqrt{7}-\sqrt{6}}$

   1) –1 2) 1 3) 5 4) 0

3. If $x=3+2\sqrt{2}$ then value of $x+\frac{1}{x}$ is

   1) 6 2) 8 3) 10 4) 12

4. Raghav had ₹$(6x^3 + 2x^2 + 3x)$ and he bought $(4x^2 + 3)$ shirts. The price of each shirt is ₹$(x + 5)$. How much money is left with Raghav?

   1) ₹$(2x^3 - 18x^2 - 15)$ 2) ₹$(4x^2 - 2x - 3)$

   3) ₹$(x^3 - 3x)$ 4) ₹$(2x^3 + 2x^2 - 15)$

5. $\sqrt{5}+2$ is _____ number

   1) Rational 2) Odd 3) Irrational 4) Even

6. Simplify $\frac{\sqrt{18}}{5\sqrt{18}+3\sqrt{72}-2\sqrt{162}}$

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

7. ₹8000 is lent at 5% compound interest per annum for 2 years. Find the amount

   1) ₹8800 2) ₹8820 3) ₹8840 4) ₹8940

8. If P = ₹16000, A = ₹16800 then interest is

1) ₹32,800 2) ₹800 3) ₹600 4) ₹6000

9. Simplify $(a+b)^2-(a-b)^2$

1) $-4ab$ 2) $4ab$ 3) $2ab$ 4) $-2ab$

10. If $x \neq 0$ and $x+\frac{1}{x}=2$ then the value of $x^{2025}+\frac{1}{x^{2025}}$

1) 2025 2) 4 3) 1 4) 2

11. If $a^2-5a+1=0$, $a \neq 0$, then $a^2+\frac{1}{a^2}$

1) 23 2) 25 3) 20 4) 29

12. Simplify $8^3+(-5)^3+(-3)^3$

1) 512 2) 664 3) 360 4) -360

13. One of the factor of x^2+5x-6

1) $x+1$ 2) $x-1$ 3) $x-6$ 4) $x-2$

14. Factorise $7-12x-4x^2$

1) $(2x-1)(7+2x)$ 2) $(1-2x)(7-2x)$ 3) $(1-2x)(7+2x)$ 4) $(-2x-7)(3x-1)$

15. If $x=2$, $y=1$ is a solution of $2x+3y=m$ then value of m is

1) 6 2) -6 3) 7 4) -7

16. The sum of two numbers is 12 and their difference is 2 find the sum of squares of those two numbers

1) 54 2) 95 3) 64 4) 74

17. If the HCF of 96 and 144 is 24 × K and LCM of 96 and 144 is 24 × L then find the LCM and HCF of L and K respectively

1) 29, 3 2) 12, 2 3) 2, 12 4) 24, 12

18. The value of $\left(\frac{64}{125}\right)^{\frac{-2}{3}} \div \frac{1}{\left(\frac{256}{625}\right)^{\frac{1}{4}}} \times \frac{\sqrt{25}}{\sqrt[3]{64}}$

1) $\frac{25}{16}$ 2) 1 3) -1 4) $\frac{16}{25}$

19. Simplest rationalising factor of $\sqrt{27}$

1) $\sqrt{2}$ 2) $\sqrt{5}$ 3) $\sqrt{3}$ 4) $\sqrt{6}$

20. If $\frac{2\sqrt{3}+3\sqrt{2}}{2\sqrt{3}-3\sqrt{2}}=a+b\sqrt{6}$ then a^2+b^2

1) -29 2) -28 3) 28 4) 29

21. In how many years will ₹2000 amount to ₹2662 to 10% in compound interest

1) 1 2) 2 3) 3 4) 4

22. The population of town increases by 20% per annum. If present population is 2,16,000 then population 2years ago is

1) 3,11,040 2) 1,50,000 3) 2,25,000 4) 1,60,000

23. The valve of $(45)^2-(1)^2$

1) 2025 2) 2026 3) 2024 4) 2028

24. If $a+b=9, ab=-22$ then the value of $a-b$

1) 13 2) 14 3) 0 4) -1

25. If $a^2+b^2+c^2=29,\ a+b+c=9$ then $ab+bc+ca$ is

1) 25 2) 47 3) 52 4) 26

26. If $x+y+z=0$ the value of $\frac{(x+y)^2}{xy}+\frac{(y+z)^2}{yz}+\frac{(z+x)^2}{zx}$

1) 0 2) 1 3) 2 4) 3

27. In the product of $(5x-3)$ and $(x+2)^2$ the coefficient of x

1) 17 2) 8 3) 12 4) -8

28. If a,b,c are non – zero distinct numbers and $\frac{a}{b}=\frac{b}{c}$ then the value of $(a+b+c)(a-b+c)$ is

1) $a^2-b^2+c^2$ 2) $a^2+b^2-c^2$ 3) $a^2+b^2+c^2$ 4) 0

29. Evaluate $\frac{0.6\times0.6\times0.6-0.3\times0.3\times0.3}{0.6\times0.6+0.6\times0.3+0.3\times0.3}$

1) 0.6 2) 0.9 3) -0.3 4) 0.3

30. The length and breadth of a rectangle are $x+3$ and $x+2$ respectively then area of rectangle is

1) x^2+4x+6 2) x^2+5x+6 3) x^2+6x+5 4) x^2+6x+6

31. $\sqrt{\frac{2025(x+y)^2}{(x^2-y^2)^2}}=$

1) $\frac{45}{x-y}$ 2) $\frac{44}{x-y}$ 3) $\frac{45}{x+y}$ 4) $\frac{44}{x+y}$

32. The sum of two digit number is 9. Also nine times this number is twice the number obtained by reversing the order of the digits. What is the number

1) 18 2) 81 3) 19 4) 91

33. If $x=(-1)^{2024}\ y=(-1)^{2025}$ then the value of $(x+y)^{2025}$

1) 0 2) 1 3) -1 4) 2

34. If $1176 = 2^x\ 3^y\ 7^z$ then the value of $(x+y+z)^3$

1) 125 2) 216 3) 343 4) 512

35. The value of $\left(\frac{a^m}{a^{-n}}\right)^{m-n} \times \left(\frac{a^n}{a^{-l}}\right)^{n-l} \left(\frac{a^l}{a^{-m}}\right)^{l-m}$

1) 0 2) -1 3) 1 4) 2

36. If the area of square field is 4096m^2 then perimeter of square field is

1) 64m 2) 256m 3) 64m^2 4) 256m^2

37. Find the HCF of $\frac{1}{10}, \frac{1}{100}, \frac{1}{1000}$

1) 0.01 2) 10 3) 0.001 4) 1000

38. A man can do $\left(\frac{1}{15}\right)^{\text{th}}$ part of a work in one day. In how many days he can complete the whole work

1) 30days 2) 15days 3) 10days 4) 20days

39. Which of the following is a rational number?

1) $\sqrt{3}+1$ 2) π 3) $2\sqrt{3}$ 4) 0

40. The sum of $0.\overline{2}$ and $0.\overline{5}$ is

1) $\frac{7}{10}$ 2) $\frac{7}{9}$ 3) $\frac{7}{99}$ 4) $\frac{3}{10}$

41. The number of consecutive zeros in $2^3 \times 3^4 \times 5^4 \times 7,$ is

1) 3 2) 2 3) 4 4) 5

42. If $7^{5x-8} \times 5 = 30625,$ then $x =$

1) 4 2) 3 3) 2 4) 1

43. Which is the greatest among $81^{18}, 243^{15}, 27^{21}$ *and* 9^{38} ?

1) 243^{15} 2) 27^{21} 3) 9^{38} 4) 81^{18}

44. If $11^x = 3^y = 99^z = k,$ *then* $\frac{1}{x}+\frac{1}{y}+\frac{1}{z} =$

1) $\frac{2}{z}-\frac{1}{y}$ 2) $\frac{2}{z}+\frac{1}{y}$ 3) $-\frac{1}{y}$ 4) 0

45. If $\sqrt{2^n} = 1024,$ then $3^{2(n/4-4)}$ is equal to

1) 3 2) 9 3) 27 4) 81

46. $\sqrt{(a+b+c)^2+(a+b-c)^2+2(c^2-a^2-b^2-2ab)}$ is equal to

1) $2c$ 2) $2a$ 3) $2b$ 4) $a+b+c$

47. If the volume of a cuboid is $3x^2-27,$ then its possible dimensions are

1) $3, x^2, -27x$ 2) $3, x-3, x+3$ 3) $3, x^2, 27x$ 4) 3,3,3

48. The product $(a+b)(a-b)(a^2-ab+b^2)(a^2+ab+b^2)$ is equal to

1) a^6+b^6 2) a^6-b^6 3) a^3-b^3 4) a^3+b^3

49. $x=2,\ y=-1$ is a solution of the linear equation

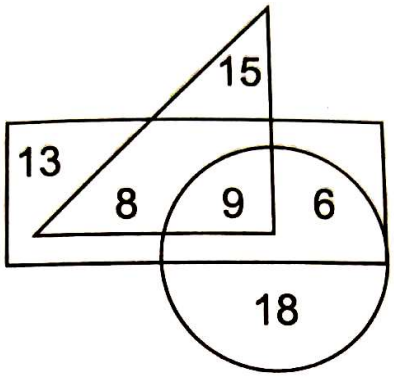
1) $x+2y=0$ 2) $x+2y=4$ 3) $2x+y=0$ 4) $2x+y=5$

50. If $(2k-1,k)$ is a solution of the equation $10x-9y=12,$ then $k=$

1) 1 2) 2 3)3 4) 4

ARITHMETIC AND LOGICAL REASONING QUESTIONS:

51. In the given Venn diagram, circle represents students living in Delhi, triangle represents students who use metro for transportation, rectangle represents students who like Mathematics. Which number represents students who live in Delhi and use metro for transportation and like Mathematics?



1) 18 2) 8 3)9 4) 13

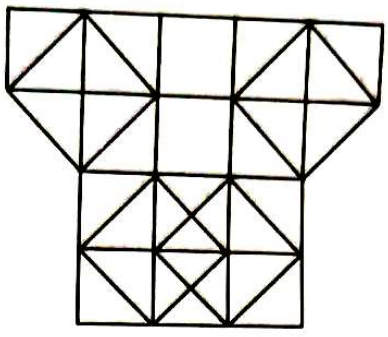
52. Select the number which will complete the given series
2, 7, 22, 67, ?, 607

1) 192 2) 202 3)127 4) 232

53. If 'P' stands for '÷', 'Q' stands for '+', 'R' stands for '×' and 'S' stands for '−', then which of the following options is correct?

1) 5 R 6 Q 8 P 2 S 9 = 25 2) 4 R 6 Q 8 P 4 S 9 = 15
3) 5 R 3 Q 8 P 2 S 7 = 10 4) 4 R 3 Q 8 P 2 S 7 = 12

54. Find the number of squares formed in the given figure

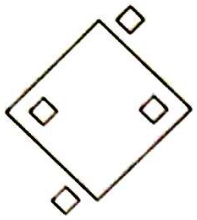
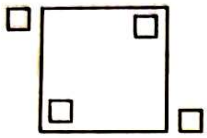
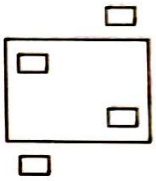


1) 18 2) 19 3)20 4) More than 20

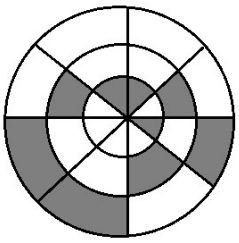
55. Nikita left her home to play in a garden. She walked 4m towards North and then turned right and walked 8m. She then turned right again and walked 10m. Finally, she turned left and walked 10m to reach the garden. How far and in which direction is her home from the garden?

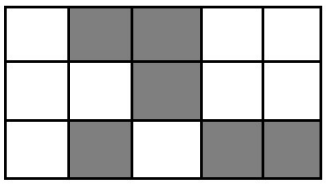
1) $6\sqrt{10}m$, South-East
2) $4\sqrt{10}m$, North-West
3) $6\sqrt{10}m$, North-West
4) $4\sqrt{10}m$, East

56. Select the odd one out

1) 
2) 
3) 
4) 

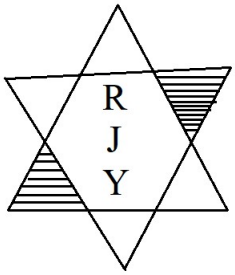
57. Find the sum of shaded fractions of the given figures

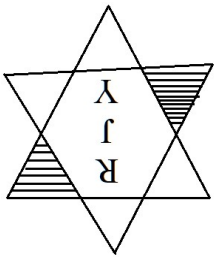
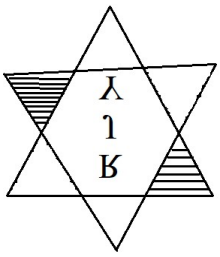
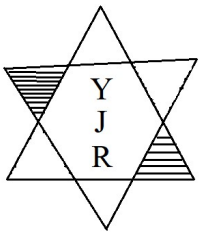

(i)

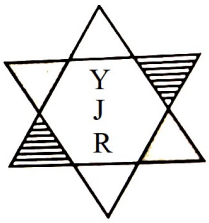

(ii)

1) $\frac{23}{25}$
2) $\frac{31}{40}$
3) $\frac{27}{40}$
4) $\frac{13}{27}$

58. Find the correct water image of the given figure



1) 
2) 
3) 

4) 

59. Find the difference between the place values of two 7's in 476785

1) 9300
2) 67400
3) 25700
4) 69300

60. In a certain code, if 'TALE' is written as 38, then how will you code 'CAME' using the same coding scheme?

1) 22
2) 32
3) 42
4) 52

61. A car travels a distance 50km with a velocity 25km/h and then 60km with a velocity 20km/h in the same direction. The total time of journey of the car is

1) 8h 2) 5h 3) 7h 4) 4h

62. A body when projected up with an initial velocity u goes to a height h in time 't' and then comes back at the point of projection. The correct statements is

1) The average velocity is $\frac{2h}{t}$

2) The acceleration is zero

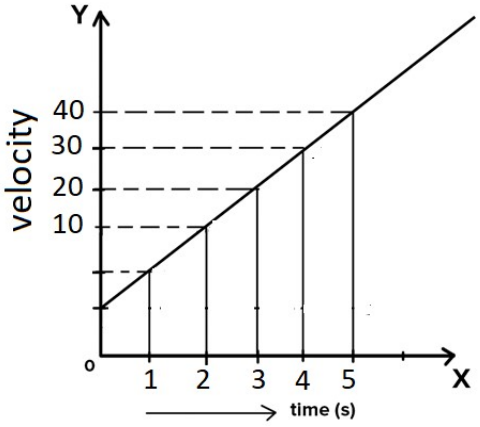
3) The final velocity on reaching the point of projection is 2u

4) The displacement is zero

63. The speed of a car is 72km/h. The speed of car in m/s is

1) 25 2) 30 3) 35 4) 20

64. In below figure straight line AB represents the velocity time graph of a car initially moving with velocity 10m/s and then with uniform acceleration its velocity at different instants is indicated below figure. The acceleration and displacement during time period 5 seconds is



1) $5m/s^2$, 112.5m 2) $10m/s^2$, 112.5m 3) $5m/s^2$, 120m 4) 112.5m, $5m/s^2$

65. The non – contact force is

1) Force of reaction 2) Force due to gravity

3) Tension in string 4) Force of friction

66. A ball of mass 10g is moving with a velocity of 50m/s. On applying a constant force on ball for 2s, it acquires a velocity of 70m/s. The rate of change of momentum is

1) 0.5 kgm/s 2) 0.7kg m/s 3) 0.2kgm/s 4) 0.1kg m/s

67. The value of gravitational unit of force is (in MKS system)

1) g newton 2) 2g newton 3) $\frac{g}{2}$ newton 4) g dyne

68. In a Hydraulic machine the two pistons are of area of cross section in the ratio 1 : 10. What force needed on the narrow piston to overcome a force of 100N on the wider piston.

1) 10N 2) 5N 3) 15N 4) 20N

69. The pressure P_1 at the top of a dam and P_2 at the depth h from the top inside water. (density ρ) are related as

1) $P_1 > P_2$ 2) $P_1 = P_2$ 3) $P_1 - P_2 = h\rho g$ 4) $P_2 - P_1 = h\rho g$

70. The mass of a body whose volume is $2m^3$ and relative density is 0.52

1) 100 kg 2) 1000 kg 3) 2000 kg 4) 1040 kg

71. A body of weight W is floating in a liquid. It's apparent weight will be

1) Zero 2) Equal to W 3) Greater than W 4) Less than W

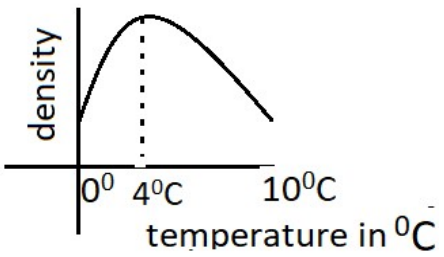
72. A rubber ball floats on water with its $\frac{1}{3}^{rd}$ volume outside water. The density of rubber is

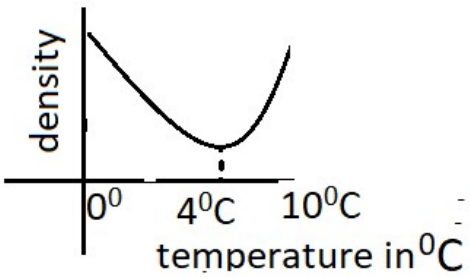
1) $557 kg/m^3$ 2) $667 kg/m^3$ 3) $767 kg/m^3$ 4) $867 kg/m^3$

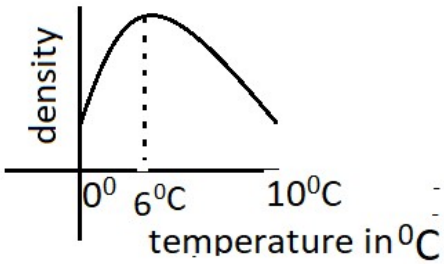
73. Water is cooled from 4^0c to 0^0c it will

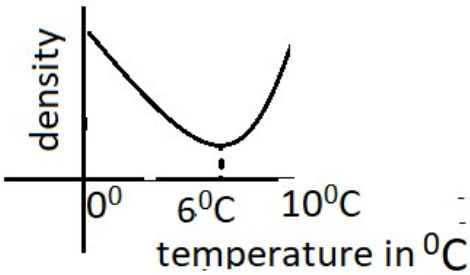
1) Contract 2) Expand
3) First contract then expand 4) First expand, then contract

74. The variation of density of water with temperature in a range of 0^0C to 10^0C is shown in a graph as

1) 

2) 

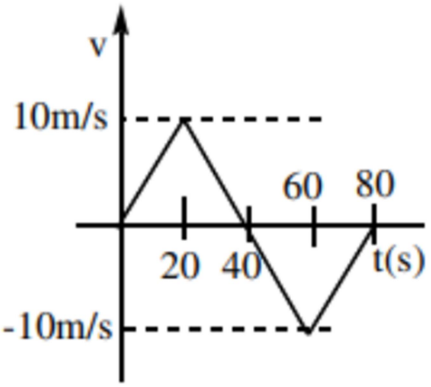
3) 

4) 

75. The kinetic energy acquired by a mass m in travelling a distance d, starting from rest, under the action of a constant force is directly proportional to

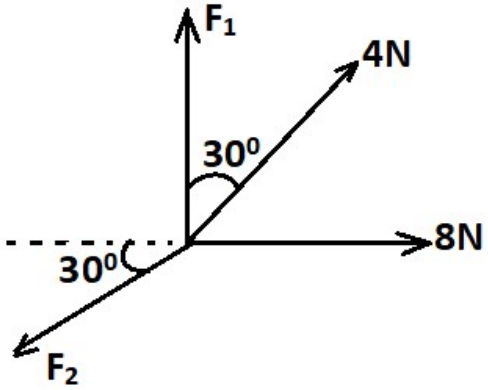
1) m^0 2) m 3) $\sqrt{m}$ 4) $\frac{1}{\sqrt{m}}$

76. For the following velocity time graph, the average speed for motion during first 80 seconds is



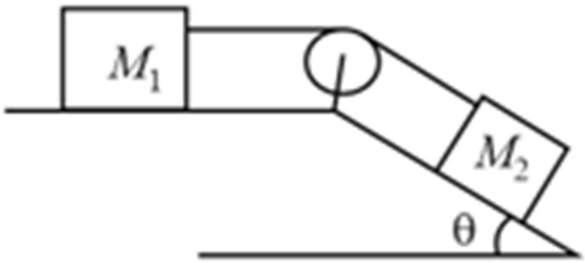
1) 0 m/s 2) 5 m/s 3) 10 m/s 4) 0.25 m/s

77. An object is in equilibrium when four concurrent forces acting in the same plane are in directions shown in figure. Find the magnitudes of F_1 *and* F_2



1) $\frac{2}{\sqrt{3}}N \,\&\, \frac{20}{\sqrt{3}}N$ 2) $\frac{\sqrt{3}}{2}N \,\&\, \frac{\sqrt{3}}{20}N$ 3) $\frac{4}{\sqrt{3}}N \,\&\, \frac{10}{\sqrt{3}}N$ 4) $\frac{4}{\sqrt{3}}N \,\&\, \frac{20}{\sqrt{3}}N$

78. Two masses M_1 & M_2 are arranged as shown in figure. Let '*a*' be the acceleration of the system. $(M_2 > M_1)$



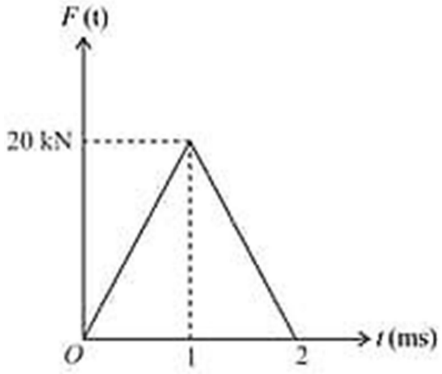
1) $\frac{M_1 g \sin\theta}{M_1 + M_2}$ 2) $\frac{(M_1 + M_2) g \sin\theta}{M_2 - M_1}$ 3) $\frac{M_2 g \sin\theta}{M_1 + M_2}$ 4) $\frac{M_1 M_2 g \sin\theta}{M_1 + M_2}$

79. A shell of mass '*m*' moving with velocity 'v' suddenly, breaks into two pieces. If one of those parts having mass m/3 remains stationary. Find the velocity of the other part.

1) $\frac{3V}{2}$ 2) $2V$ 3) $\frac{3V}{4}$ 4) $\frac{4V}{3}$

80. A time varying force acts on a ball of man 100g for 2ms. The force versus time curve

is shown below. If the initial speed of the ball is 10m/s, then the speed of the ball after 2ms is



1) 210 m/s 2) 410 m/s 3) 200 m/s 4) 400 m/s

CHEMISTRY

81. Molecular mass of urea (NH_2CONH_2) is

1) 64 2) 60 3) 65 4) 63

82. Percentage of hydrogen in water is

1) 12% 2) 15% 3) 16% 4) 11.1%

83. Match List-I with List –II

	List-I Reaction		List-II Type of redox reaction
A)	$N_{2(g)} + O_{2(g)} \rightarrow 2NO_{(g)}$	**i)**	Decomposition
B)	$2Pb(NO_3)_{2(s)} \rightarrow 2PbO_{(s)} + 4NO_{2(g)} + O_{2(g)}$	**ii)**	displacement
C)	$2Na_{(s)} + 2H_2O_{(l)} \rightarrow 2NaOH_{(aq)} + H_{2(g)}$	**iii)**	disproportionation
D)	$2NO_{2(g)} + 2OH^-_{(aq)} \rightarrow NO_{2(aq)}^- + NO_{3(aq)}^- + H_2O_{(l)}$	**iv)**	combination

Choose correct answer from option given below

1) $A-i$, B– ii, C– iii, D– iv 2) $A-iii$, B– ii, C– i, D– iv

3) $A-ii$, B– iii, C– iv, D– i 4) $A-iv$, B– i, C– ii, D– iii

84. The latin names of the following elements are

	a) Silver	**b) Iron**	**c) Tin**	**d) Mercury**
1)	a) Aurum	b) Ferrum	c) Stannum	d) Cuprum
2)	a) Argentum	b) Ferrum	c) Stannum	d) Hydrargyrum
3)	a) Kalium	b) Cuprum	c) Natrium	d) Wolfram
4)	a) Cuprum	b) Aurum	c) Kalium	d) Hydrargyrum

85. Choose the correct answer from the options below:

1) Chemical formula of potassium iodide is KI

2) Chemical formula of sodium nitrite is $NaNO_3$

3) Chemical formula of sodium carbonate is $NaCO_3$

4) Chemical formula of calcium nitrate is $Ca_2(NO_3)_2$

86. Which of the following statements are correct

I) Photochemical reaction is a reaction that occurs with absorption of light energy

II) Electrochemical reaction is a reaction that occurs with liberation of electrical energy

III) A chemical reaction is a reaction in which heat is liberated is called exothermic reaction

IV) Respiration is exothermic reaction.

1) I, IV are correct 2) II, IV are correct

3) III, IV, I are correct 4) I, II, III, IV are correct

87. Which of the following reaction is correct?

1) $2H_2O_2 \xrightarrow{Pt} 2H_2O + \frac{1}{2}O_2$ 2) $2KClO_3 \xrightarrow{MnO_2} 2KCl + 3O_2$

3) $4NH_3 + 2O_2 \xrightarrow[500^0C]{Pt} 4NO + 6H_2O$ 4) $N_2 + H_2 \rightleftharpoons 2NH_3$ $(200atm)$

88. Which of the following is an example for neutralization reaction

1) $HCl + NaCl \rightarrow NaH + Cl_2$

2) $2NaOH + Ca(OH)_2 \rightarrow Na_2O + H_2O$

3) $H_2SO_4 + 2NaOH \rightarrow Na_2SO_4 + 2H_2O$

4) $CO_2 + HCl \rightarrow CaCl_2 + H_2O$

89. In the manufacture of ammonia, which of the following conditions are correct?

1) Iron acts as catalyst and molybdenum as a promoter

2) Nickel acts as catalyst and iron as a promoter

3) Copper acts as catalyst and molybdenum as a promoter

4) Zinc acts as catalyst and chromium as a promoter

90. The % composition of carbon by mole in CH_4 is

1) 80 2) 25 3) 75 4) 20

91. Which of the following statements are correct?

a) Chemical name of water is dihydrogen oxide

b) Formula of water is H_2O

c) Molecular mass of water is 18 amu

d) Water exists in solid, liquid states only

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

92. If 30 grams of $NaCl$ is added to 70 grams of water, the mass percentage of the solution is _____

1) 10% 2) 30% 3) 20% 4) 40%

93. 15gm of a saturated sodium chloride solution at 25^0C, when evaporated to dryness, leaves a solid residue of 5gm, calculate the solubility of sodium chloride.

1) 10gm 2) 20gm 3) 35gm 4) 50gm

94. Match the following

List – I	List-II
A) Plaster of paris	p) $MgSO_4.7H_2O\ (white)$
B) Epsom salt	q) $CuSO_4.5H_2O(blue)$
C) Blue vitriol	r) $CaSO_4.2H_2O(colourless)$
D) Gypsum	s) $CaSO_4.\frac{1}{2}H_2O(white)$

Which one is correct?

1) $A-s, B-p, C-q, D-r$ 2) $A-q, B-p$, C– r, D– s

3) $A-q, B-p$, C– s, D– r 4) $A-s, B-p$, C– r, D– q

95. Hardness in water is due to presence of following salts

1) Bicarbonates of sodium, chlorides of potassium

2) Bicarbonates of Magnesium, sulphates of calcium

3) Chlorides of potassium, bicarbonates of rubidium

4) Sulphates of sodium, chlorides of lithium

96. Calcium carbonate $\xrightarrow{\Delta} A+B$, In this reaction A, B respectively are

1) $CaO_2 = A, CO_2 = B$ 2) $CaO = A, CO_2 = B$

3) $Ca = A, CO = B$ 4) $CaCO_3 = A, CO_2 = B$

97. The incorrect postulates of the Dalton's atomic theory are

A) Atoms of different elements differ in mass

B) Matter consists of divisible atoms

C) Compounds are formed when atoms of different element combine in a fixed ratio

D) All the atoms of given element have different properties including mass

E) Chemical reactions involve reorganization of atoms

Choose the correct answer from the options given below

1) $(B),(D),(E)$ only 2) $(A),(B),(D)$ only

3) $(C),(D),(E)$ only 4) $(B),(D)$ only

98. Which of the following statement is true?

1) Boron is non-metal solid and has valency is 5

2) Aluminium is metal solid and has valences is 5

3) Argon is noble gas and has valency is zero

4) Calcium is non-metal solid and has valency is 2

99. Oxygen isotopes are

1) O_8^{16}, O_8^{18} 2) O_7^{16}, O_8^{18} 3) O_6^{16}, O_8^{17} 4) O_8^{17}, O_7^{17}

100. How many of the following are nonpolar compounds

$H_2, Cl_2, N_2, O_2, HCl, H_2O, NH_3, CH_4, CCl_4$

1) 5 2) 2 3) 3 4) 6

THE END