EDUTECH ACADEMY
NURTURING THE FUTURE...
— Classes 5 to 10 —

SET A

N 714

Seat No. | | | | | | | |

2025 XII 27 1100 – N 714 – SCIENCE & TECHNOLOGY PART I (71)

(REVISED COURSE)

Time : 2 Hours **(Pages 5)** **Max. Marks : 40**

Note :- (i) It is necessary to solve all the questions.

(ii) Draw neat and labelled diagrams wherever necessary.

(iii) Start every new main question on separate page.

(iv) Figures on the right indicate marks.

(v) For Each Multiple Choice Question (1.B), ONLY first answer will be considered.

(vi) Write answer of each MCQ with option number.

Eg. i) a……. ii) c……

Q.1(A) Choose the proper alternative and fill in the blanks: **5**

(1) In a chemical equation, the reactants are written on the left hand side while the products on the _____.

(a) right hand side

(b) either left or right hand side

(c) both left and right hand side

(d) sometimes left and sometimes right hand side

(2) _____ was the first person to show that the kinetic energy of tiny particles of matter appears as heat energy and also that energy can be converted from one form to another.

(a) Sir Issac Newton (b) Hans Christian Oersted

(c) Michael Faraday (d) James Prescot Joule

(3) The refractive index of a medium with respect to vacuum is called its _____.

(a) absolute refractive index (b) relative refractive index

(c) pure refractive index (d) vacuum refractive index

(4) The _____ controls the amount of light entering the eye.

(a) pupil (b) retina (c) cornea (d) iris

(5) The arrangement of metals in the increasing or decreasing order of reactivity is called the _____.

(a) reactivity action series of metals (b) reactivity motion series of metals

(c) reactivity arrangement series of metals (d) reactivity series of metals

(B) Attempt the following: **5**

(1) Find the odd one out: **1**

Melting of ice, Corrosion of iron, Photosynthesis in plants, Conversion of milk to curd

(2) State 'True' or 'False', if 'False' correct it: **1**

The amount of vapour needed to saturate the air depends on temperature of the air.

(3) Write the correlated terms: **1**

Newlands: Octaves :: _____ : Triads.

(4) Name the following: **1**

The device used by Sir Issac Newton to produce spectrum of seven colours.

(5) Answer the following in one line: **1**

Write the molecular formula of calcium carbonate.

Q.2 (A) Give reasons:(Any Two) **4**

(1) Tungsten metal is used to make a solenoid type coil in an electric bulb.*

(2) One can sense colours only in bright light.*

(3) Carbon is a tetravalent atom.

(B) Answer the following:(Any Three) **6**

(1) Atomic number of metal 'A' is 11, while atomic number of metal 'B' is 20. Which of them will be more reactive? Write the chemical reaction of dilute HCl with metal 'A'.

(2) Which of the statement given below correctly describes the magnetic field near a long, straight current carrying conductor?*

a. The magnetic lines of force are in a plane, perpendicular to the conductor in the form of straight lines.

B. The magnetic lines of force are parallel to the conductor on all the sides of conductor.

C. The magnetic lines of force are perpendicular to the conductor going radically outward.

D. The magnetic lines of force are in concentric circles with the wire as the centre, in a plane perpendicular to the conductor.

(3) Have you seen that objects beyond and above a holi fire appear to be shaking? Why does his happen?*

(4) Identify the type of the following reaction of carbon compounds.*

(i) $CH_3\text{-}CH = CH\text{-}CH_3 + Br_2 \rightarrow CH_3\text{-}CHBr - CHBr\text{-}CH_3$

(ii) $CH_3\text{-}CH_3 + Cl_2 \rightarrow CH_3\text{-}CH_2\text{-}Cl + HCl$

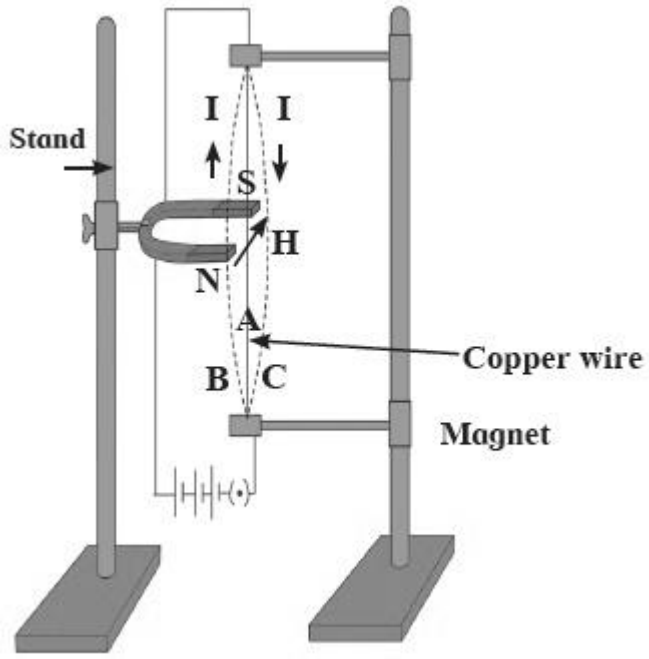
(5) What is meant by a satellite launch vehicle?

Name any one Indian satellite launch vehicle.

Q.3 Answer the following:(Any Five) **15**

(1) Draw a ray diagram to show the position of image formed in a convex lens when the object is kept beyond $2F_1$. Write the nature and size of image formed.

(2) Observe the diagram and explain the following questions.



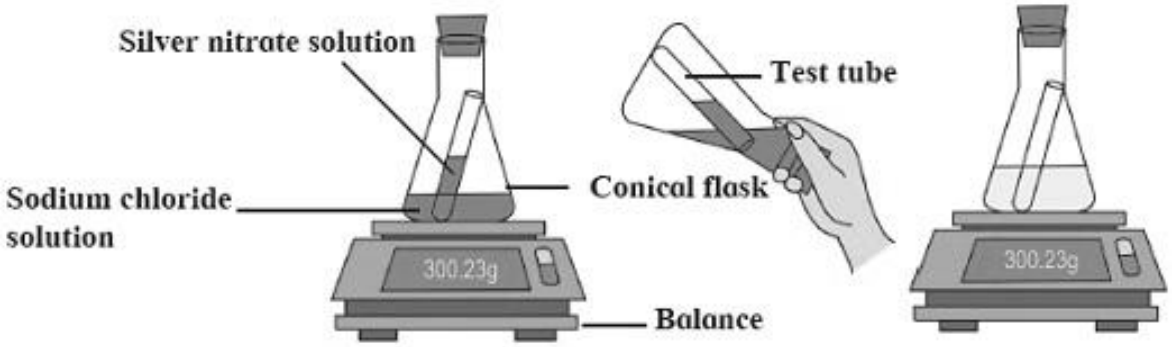
(i) What is the direction of the force experienced by the conductor when the current is downwards?

(ii) If the conductor experiences force inwards, then what would be the direction of current?

(iii) Which rule helps us to find the force experienced by a current carrying conductor in the above diagram?

(3) Prove that a rainbow is the combined effect of the refraction, dispersion & total internal reflection of light.

(4) The reaction between sodium chloride solution and silver nitrate solution is shown in the below figure:



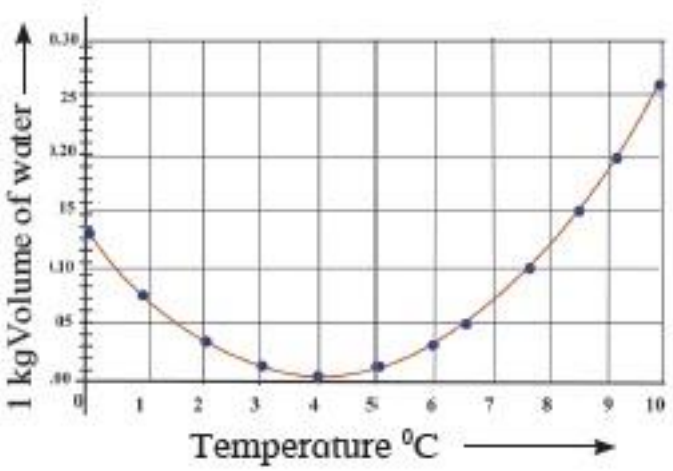
i. Identify the products of the reaction.

ii. Does the reaction follow law of conservation of mass? Justify your answer.

(5) Complete the following table.*

IRNSS		
	Weather study & predict	
		Earth's observation

(6) Observe the following graph. Considering the change in volume of water as its temperature is raised from 0 °C, discuss the difference in the behaviour of water and other substances. What is this behaviour of water called?*



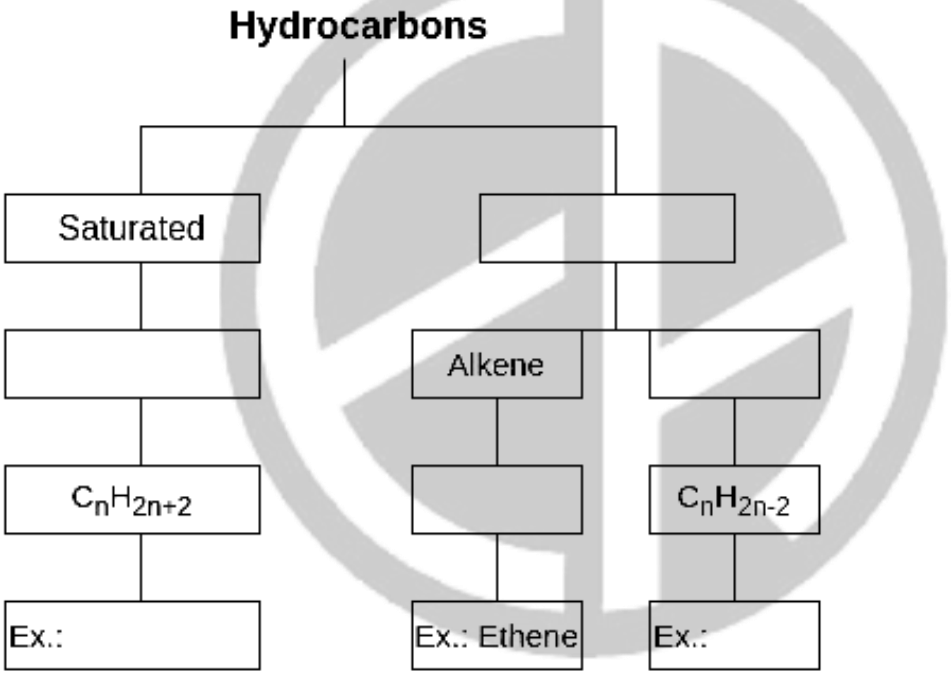
(7) Write the names from the description

a) The period with electrons in the shells K, L & M

b) $_7$N, $_8$O, $_5$B which is the most electronegative element among these?

c) $_{19}$K, $_3$Li, $_{11}$Na, $_4$Be which of these atoms has smallest atomic radius?

(8) Complete the following flow chart :



Q.4 Answer the following:(Any One) **5**

(1) 1. By referring to the modern periodic table find out the groups to which above the elements belong.

2. Arrange the above elements vertically downwards in an increasing order of atomic radii.

3. Does this arrangement match with the pattern of the group 1 of the modern periodic table?

4. Which of the above elements have the biggest and the smallest atom?

5. What is the periodic trend observed in the variation of atomic radii down a group?*

Element	:	K	Na	Rb	Cs	Li
Atomic radius (pm):		231	186	244	262	152

(2) Write chemical equation for the following events.*

(i) Aluminium came in contact with air.

(ii) Iron filings are dropped in aqueous solution of copper sulphate.

(iii) A reaction was brought about between ferrous oxide and aluminium.

(iv) Electrolysis of alumina is done.

(v) Zinc oxide is dissolved in dilute hydrochloric acid.

....All The Best....