

Marks : 40

Time : 8.00 am to 10.00 am

- 1) All questions are compulsory.
- 2) Use of calculator is not allowed.
- 3) The numbers to the right of the questions indicate full marks.
- 4) Start writing each main question on new page.
- 5) Figures to the right indicate full marks.
- 6) For each MCQ [i.e.Q No.1(A)] evaluation would be done for first attempt only.
- 7) For each MCQ correct alternative must be written as shown in the e.g (1)A.

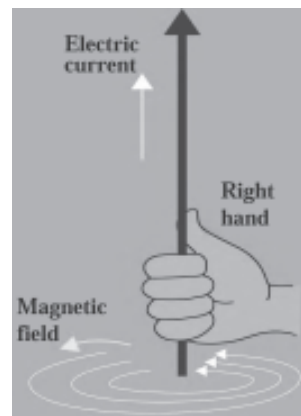
(5)

- i) Valency of Alkaline earth metal is _____ .
- A) 1 B) 2
C) 3 D) 0
- ii) According to Kepler's third law, the relationship between the average distance of a planet (r) from the sun and its period of revolution (T) is _____ .
- A) $r^2 \propto T^3$ B) $r^3 \propto \frac{1}{T^3}$
C) $T^2 \propto r^3$ D) $T^2 \propto \frac{1}{r^3}$
- iii) The reaction of iron nail with copper sulphate solution is _____ type of reaction.
- A) Combination B) Decomposition
c) Displacement D) Double Displacement
- iv) When the electric current is passed through the solenoid, it shows magnetic lines of force similar to a _____ .
- A) Horse shoe magnet B) Bar magnet
C) Spherical magnet D) Disc magnet
- v) _____ has the highest refractive index.
- A) Diamond B) Water
C) Glass D) Air

B) Answer the following questions.

(5)

1. Write the formula of Escape velocity.
2. Define - Refraction of light.
3. Observe the figure given adjacent and state which rule does the diagram represent.



4. Find the odd one out.
INSAT, GSAT, IRS, PSLV
5. Complete the correlation:
Absorption of heat : Endothermic : : Liberation of heat : _____.

Q2. A) Give Scientific reasons (Any Two)

(4)

1. Stars appear to be twinkling at night.
2. Metallic character goes on decreasing from left to right in a period.
3. It is recommended to use air tight container for storing oil for long time.

B) Answer the following questions (Any Three)

(6)

1. If the speed of light in a medium is 1.5×10^8 m/s, then find the absolute refractive index of the medium?
(Speed of light in vacuum is 3×10^8 m/s)
2. Explain redox reaction with the help of a balanced chemical equation.
3. Why is it beneficial to use satellite launch vehicle made of more than one stage.
4. A tennis ball is thrown up and reaches a height of 4.05m before coming down, find its initial velocity. (Assume $g = 10 \text{ m/s}^2$)
5. Distinguish between 'Group and Period' of Modern periodic table by stating any two points of distinction.

Q3. Answer the following questions. (Any Five)

(15)

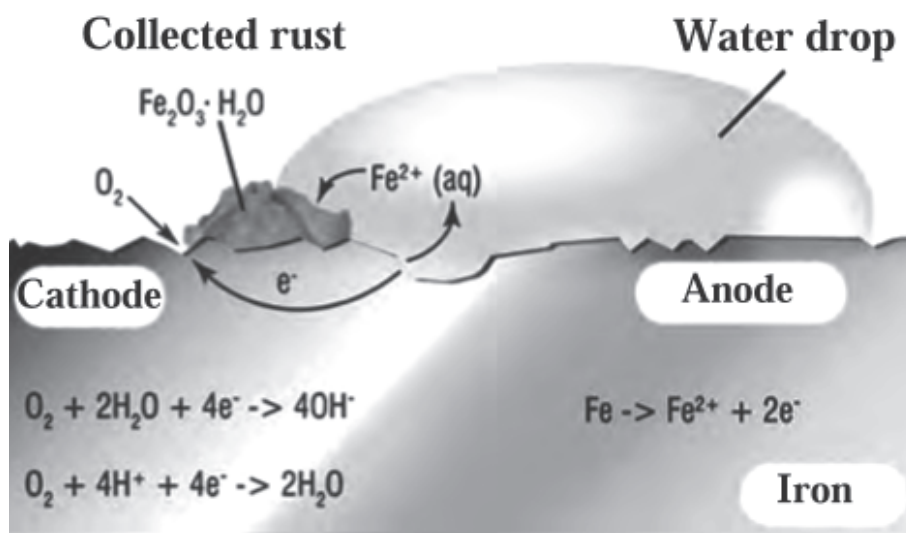
1. Write a short note on 'Formation of Rainbow' (Figure is expected).
2. a) State the principle of working of satellite launch vehicle.

Q4. Answer the following questions (Any One)**(5)**

1. Observe the table given below and hence answer the questions given below.

Element	O	B	C	N	Be	Li
Atomic radius (pm)	66	88	77	74	111	152

- By referring to the modern periodic table, write the period to which the above elements belong to.
 - Arrange and write the above elements in a decreasing order of their atomic radii.
 - Which of the above elements have the biggest and the smallest Atom?
 - Define Atomic radius.
 - What is the periodic trend observed in the variation of atomic radius while going from left to right within a period.
2. Observe the following figure given below and hence answer the questions.



- What is rust?
- Write the chemical formula of rust?
- Write the reaction of oxidation of iron at Anode.
- Write the reaction of oxidation of iron at Cathode.
- Name any two methods to prevent rusting of Iron.

