LITTLE FLOWER CONVENT HIGH SCHOOL, SOLAPUR

I-Semester 2021

STD	SUBJECT	TIME	MARKS
X	SCIENCE AND TECHNOLOGY PART-I	2 HOUR	40

Instructions:

1. **All questions are compulsory**
2. **Use of calculator is not allowed**
3. **The numbers on the right of questions indicate full marks**
4. **For each MCQ the correct alternative (A), (B), (C), (D), with sub question number is to be written as an answer. For eg: (i) (A), (ii) (B), (iii) (C)**
5. **Scientifically correct, labeled diagrams should be drawn wherever necessary**

Q 1 A) Answer the following: (05)

1) Fill in the blanks:
   a) The vertical columns in the Mendeleev's periodic table are called--------.
   b) To prevent rusting, a layer of -------- is applied on iron sheets.
2) Find the odd one out:
   a) Fuse wire, bad conductor, rubber gloves, generator
3) Match the columns:

	A		B
i)	Gravitational constant	a)	Depends on height
		b)	Same in the entire universe

4) State true or false:
   a) The conversion of ferrous sulphate to ferric sulphate is oxidation reaction.

Q 1 B) Write the correct alternative: (05)

1. We can see the Sun even when it is little below the horizon because of ------.
   a) Reflection of light b) Refraction of light
   c) Dispersion of light d) Absorption of light
2. Electromagnetic induction means ----------
   a) charging of an electric conductor.
   b) production of magnetic field due to current flowing through the coil.
   c) generation of current in a coil due to relative motion between the coil and magnet.
   d) motion of the coil around the axle in an electric motor
3. The law of Octaves was given by ----------.
   a) Dobereiner b) Newlands c) Mendeleev d) Moseley
4. The escape velocity of a body from earth's surface, v_{esc} =----------.
   a) $\sqrt{\frac{GM}{R}}$ b) $2\sqrt{\frac{GM}{R}}$ c) $\sqrt{\frac{2GM}{R}}$ d) $\sqrt{\frac{GM}{2R}}$
5. The density of water is maximum at ----------.
   a) 0^o C b) -4^o C c) 100^o C d) 4^o C

Q 2) Attempt any five of the following: (10)

1) Give scientific reasons: Tungsten metal is used to make a solenoid type coil in an electric bulb.
2) Why are air tight containers used for storing oil for a long time?
3) Explain the terms: a) Centripetal force b) Escape velocity.
4) Solve: A cell is connected to a 9 ohm resistance, because of which heat of 400 J is produced per second due to current flowing through it. Obtain the potential difference applied across the resistance.
5) Distinguish between AC generator and DC generator.
6) Why does the atomic radius go on increasing down a group?
7) Answer the following:
   a) What is dispersion of light?
   b) State the principle of Electric motor.

Q 3) Answer the following questions (Any five) (15)

1) What is the reaction called when oxidation and reduction take place simultaneously? Explain with one example.
2) Write a note on Demerits of Mendeleev Periodic table.
3) Write complete balanced equations:
   a) $HCl + NaOH \longrightarrow$ ----------$+H_2O$ +Heat
   b) -------$+ H_2O \longrightarrow Ca(OH)_2$+ Heat
   c) $2Ag + 2\ HCl \longrightarrow$ ----------$+H_2$
4) Write the names from the description:
   a) The family of metals having valency 1
   b) Two elements having valency 4
   c) The group with valency 0
5) a) What is Absolute refractive index?
   B) On what factors does refractive index depend?
   c) Name the substance which has the highest refractive index.
6) Explain the term specific heat capacity. Which principle is it based on? Write its units in SI system and CGS system.
7) Explain: Twinkling of stars is an effect of atmospheric conditions on refraction of light.

Q 4) Attempt any One of the following: **(05)**

A) State by drawing diagram, what happens to the path of light when,

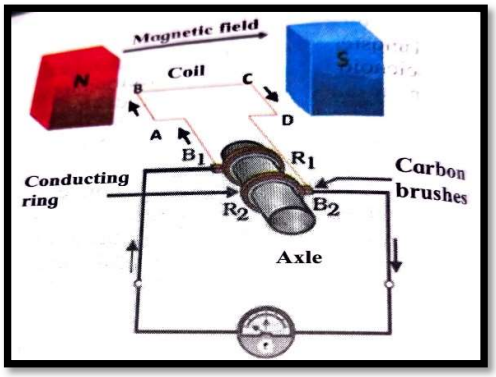
i) Light rays pass from rarer to denser medium

ii) Light rays pass from denser to rarer medium

iii) Light ray is incident normally at the boundary between two media

OR

A) Observe the figure and answer the questions:



i) Identify the figure

ii) State the principle on which it works

iii) Describe its construction and working

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