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Class: EM - CLASS 10 **Subject:** Science and Technology - Part 1 **Time:**2 hrs
Date: 08-03-2025 **Paper:** March 2024 **Marks:**40

Q1(A) Write the correct alternative : **(5)**

(1) The SI unit of heat is ..... .
- a) Calorie
- b) Kcal/kg °C
- c) Joule
- d) Cal/g °C

(2) In ..... process a layer of molten tin is deposited on metals.
- a) Anodisation
- b) Galvanising
- c) Tinning
- d) Alloying

(3) ..... is the functional group of carboxylic acid.
- a) -COOH
- b) -CHO-
- c) -CO-
- d) -OH

(4) We can see the Sun even when it is little below the horizon because of ..... .
- a) Reflection of light
- b) Dispersion of light
- c) Refraction of light
- d) Absorption of light

(5) In simple microscope ..... lens is used.
- a) Concave
- b) Plano convex
- c) Plano concave
- d) Convex

(B) Answer the following questions as per the given instructions : **(5)**

(1) Name the following (1)

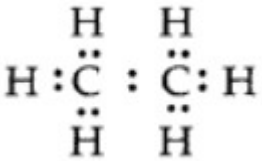
Write the molecular formula of calcium carbonate.

(2) Match the pair (1)

Column "A"	Column "B"
(1) Refractive index of water	(a) 1.31
	(b) 1.36
	(c) 1.33

(3) Answer the following in one line (1)

Identify the hydrocarbon from the given electron-dot structure:



(4) Name the following (1)
Write the name of the atom having the smallest size.

(5) Answer the following in one line (1)
Write the use of 'Calorimeter'.

Q2(A) Give scientific reasons (any two) : (4)

(1) On exposure to air, silver articles turn blackish after some time.

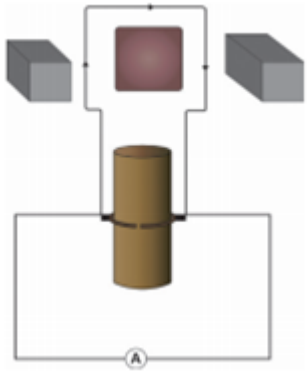
(2) Tungsten metal is used to make a solenoid type coil in an electric bulb.

(3) When the gas formed on heating limestone, is passed through freshly prepared lime water, the lime water turns milky.

(B) Answer the following questions (any three) : (6)

(1) What is meant by satellite launch vehicle? Name any one Indian satellite launch vehicle.

(2) Identify the figure and explain its uses.



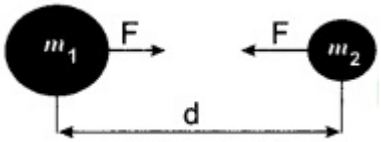
(3) State Dobereiner's law of triad. Give one example of it.

(4) What is free fall? When is it possible?

(5) The focal length of a convex lens is 20 cm. What is its power?

Q3) Answer the following (any five) : (15)

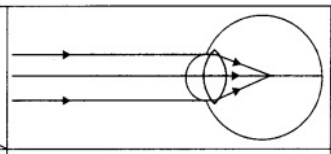
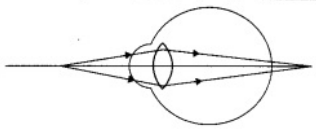
(1) Observe the figure and answer the questions:



(a) State Newton's universal law of gravitation.
(b) If the distance between the two bodies is tripled, how will the gravitational force between them change?
(c) What will happen to gravitational force, if mass of one of the object is doubled?

(2) (a) What are the factors affecting the rate of chemical reaction?
(b) Explain any one factor.

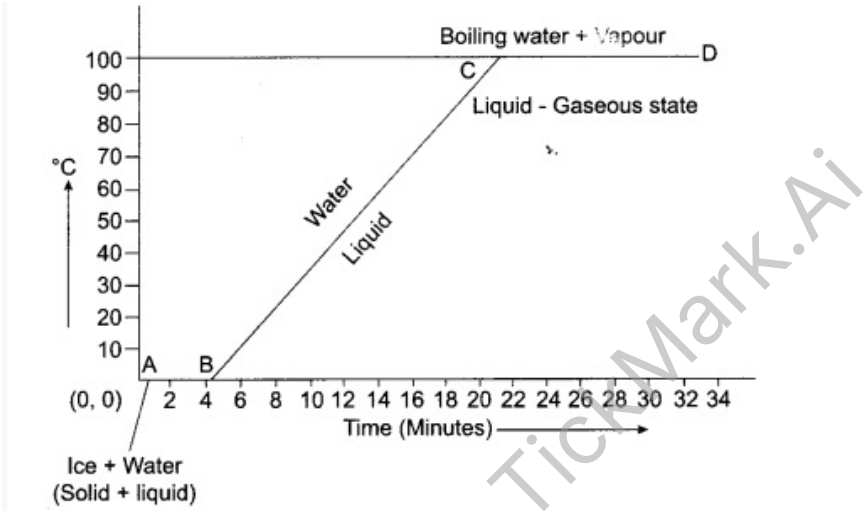
(3) Complete, the following table by observing the given figures:

Figure → / Points ↓		
(a) Name the defect	.....	.....
(b) Position of the image	.....	.....
(c) Lens used to correct the defect	.....	.....

(4) The orbit of a satellite is exactly 35780 km above the earth's surface and its tangential velocity is 3.08 km/s. How much time the satellite will take to complete one revolution around the earth? (Radius of earth = 6400 km.)

(5) State the general properties of ionic compounds.

(6) Observe the following graph and answer the following questions:



(a) What does the graph represent?
(b) What does the line AB represent?
(c) What does the line BC represent?

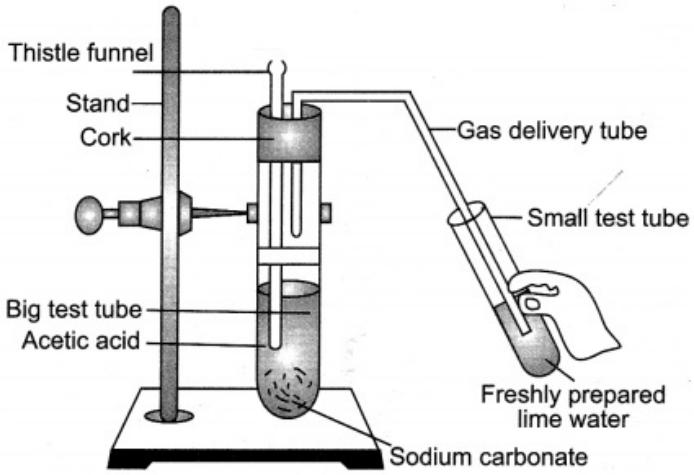
(7) What is a solenoid? Draw a neat diagram and name its various components.

(8) Select the appropriate options and complete the following paragraph:
(Metals, non-metals, metalloids, four, seven, s-block, p-block, d-block,/-block).

On the basis of electronic configuration, elements in the modem periodic table are classified into ..... blocks. Groups 1 and 2 elements are included in and all these elements are metals, (except, Hydrogen). Group 13 to 18 elements are included in ..... . This block contains metals, non-metals and metalloids. Group 3 to 12 elements are included in ..... and all the elements are ..... elements shown at the bottom of the periodic table i.e. Lanthanides and Actinides constitute ..... and all these elements are metals.

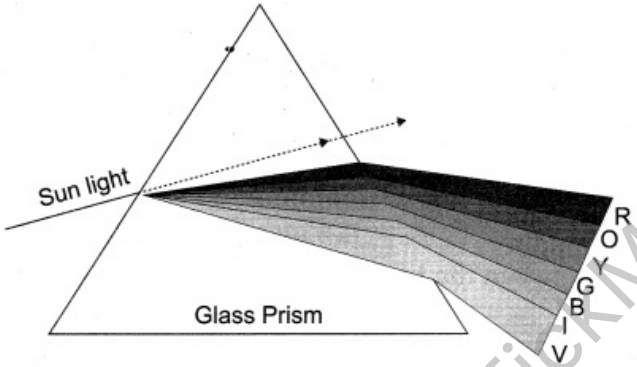
Q4) Answer any one of the following questions : **(5)**

(1) Observe the diagram given below and answer the questions:



(a) Name the reactants in this reaction.
(b) Which gas comes out as effervescence in the bigger test tube?
(c) What is the colour change in the lime water?
(d) In the above experiment instead of sodium carbonate which chemical can be used to get same products?
(e) Write the use of acetic acid.

(2) Observe the following diagram and answer the questions:



(a) Name the process shown in the figure.
(b) Name the colour that deviates the most.
(c) Name the colour that deviates the least.
(d) Name any one phenomenon in the nature which is based on the above process.
(e) Define 'spectrum'.

All the Best