



BOARD ACTIVITY SHEET: MARCH 2024

Science and Technology Part - 1

Time: 2 Hours

Max. Marks: 40

Note:

- i. All questions are compulsory.
- ii. Use of a calculator is not allowed.
- iii. The numbers to the right of the questions indicate full marks.
- iv. In case of MCQs (Q. No. 1(A)) only the first attempt will be evaluated and will be given credit.
- v. Scientifically correct, labelled diagrams should be drawn wherever necessary.

Q.1. (A) Write the correct alternative:

[5]

- i. The SI unit of heat is _____.
(A) calorie (B) joule
(C) kcal/kg °C (D) cal/g °C

ii. 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

iii. _____ is the functional group of carboxylic acid.
(A) —COOH— (B) —CO—
(C) —CHO— (D) —OH—

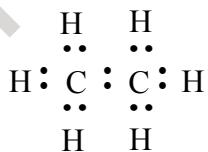
iv. In simple microscope _____ lens is used.
(A) Concave (B) Plano concave
(C) Plano convex (D) Convex

v. In _____ process a layer of molten tin is deposited on metals.
(A) Anodization (B) Tinning
(C) Galvanizing (D) Alloying

(B) Answer the following:

[5]

- i. Write the name of the atom having the smallest size.
 - ii. Write the molecular formula of calcium carbonate.
 - iii. Write the use of ‘Calorimeter’.
 - iv. Identify the hydrocarbon from the given electron-dot structure :



- v. Match the columns:

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

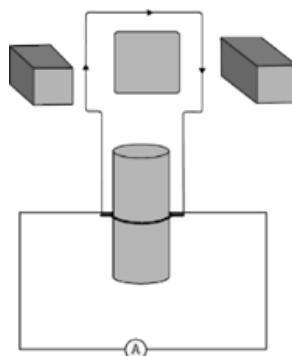


**Q.2. (A) Give scientific reasons (any two):**

- When the gas formed on heating limestone, is passed through freshly prepared lime water, the lime water turns milky.
- Tungsten metal is used to make a solenoid type coil in an electric bulb.
- On exposure to air, silver articles turn blackish after some time.

(B) Answer the following (any three):

- State Dobereiner's law of triad. Give *one* example of it.
- Identify the figure and explain its use:



- What is meant by satellite launch vehicle? Name any one Indian satellite launch vehicle.
- What is free fall? When is it possible?
- The focal length of a convex lens is 20 cm. What is its power?

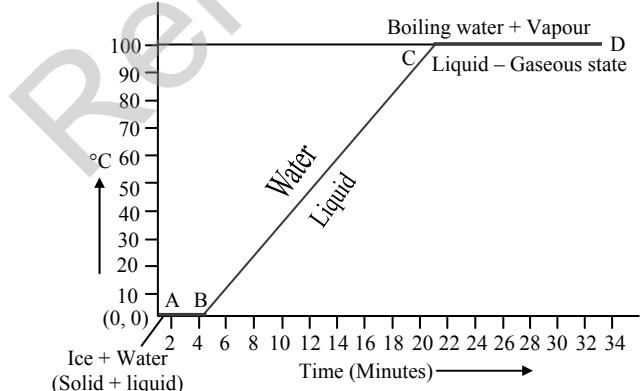
Q.3. Answer the following questions (any five):

- Select the appropriate option and complete the following paragraph :

(Metals, non-metals, metalloids, four, seven, s-block, p-block, d-block, f-block.)

On the basis of electronic configuration, elements in the modern periodic table are classified into _____ blocks. Group 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 bottoms of the periodic table i.e., lanthanides and actinides constitute _____ and all these elements are metals.

- (a) What are the factors affecting the rate of chemical reaction?
(b) Explain any *one* factor.
- Observe the following graph answer the following questions.



- What does the graph represent?
- What does the line AB represent?
- What does the line BC represent?



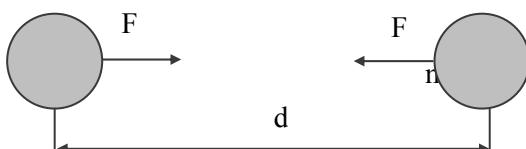


iv. Complete the following table by observing the given figures:

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

v. Write any *three* general properties of ionic compounds.

vi. 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 objects is doubled?

vii. 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?

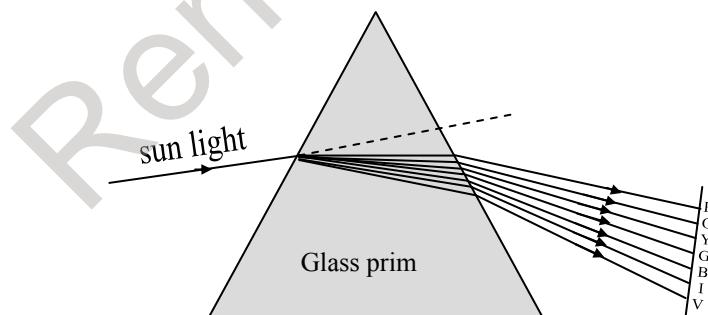
(Radius of the Earth = 6400 km.)

viii. What is a solenoid? Draw a neat diagram and name its various components.

Q.4. Answer the following questions (any one):

[5]

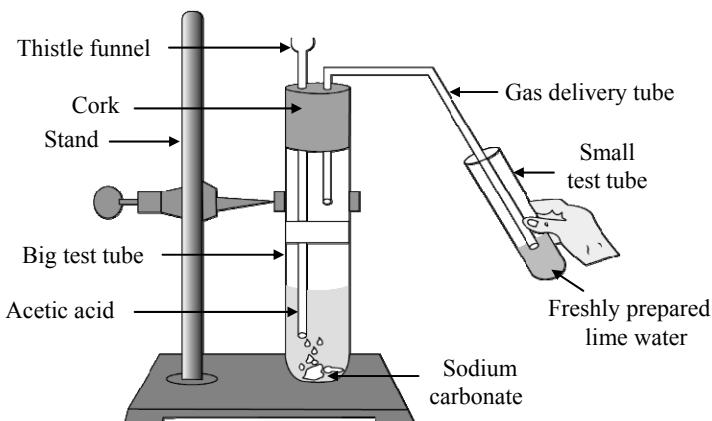
i. Observe the given diagram and answer the questions :



- (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'.



ii. 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 product?
- (e) Write the use of acetic acid.