



BOARD ACTIVITY SHEET: MARCH 2024

Science and Technology Part - 1

Time: 2 Hours

Max. Marks: 40

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

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

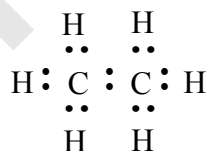
[5]

- The SI unit of heat is _____.
(A) calorie (B) joule
(C) kcal/kg °C (D) cal/g °C
- 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
- _____ is the functional group of carboxylic acid.
(A) —COOH— (B) —CO—
(C) —CHO— (D) —OH—
- In simple microscope _____ lens is used.
(A) Concave (B) Plano concave
(C) Plano convex (D) Convex
- In _____ process a layer of molten tin is deposited on metals.
(A) Anodization (B) Tinning
(C) Galvanizing (D) Alloying

(B) Answer the following:

[5]

- Write the name of the atom having the smallest size.
- Write the molecular formula of calcium carbonate.
- Write the use of 'Calorimeter'.
- Identify the hydrocarbon from the given electron-dot structure :



- 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):

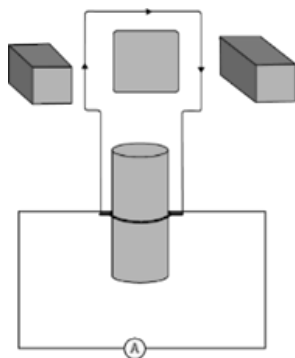
[4]

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

(B) Answer the following (any three):

[6]

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



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

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

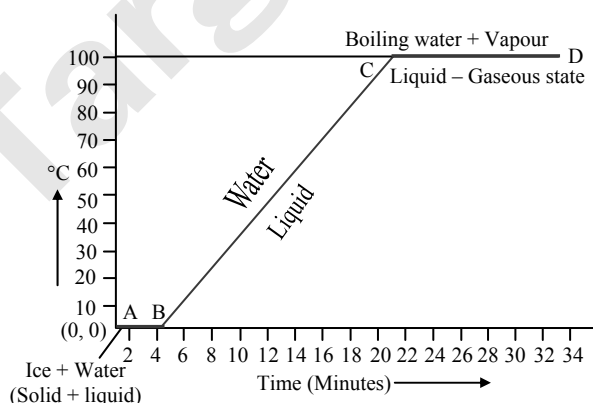
[15]

- i. 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.

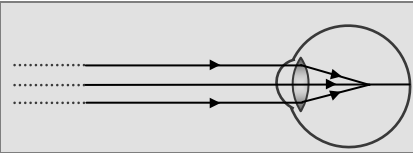
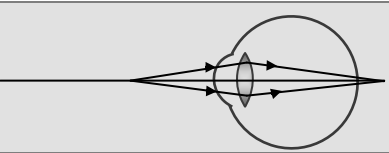
- ii. (a) What are the factors affecting the rate of chemical reaction?
(b) Explain any *one* factor.
- iii. Observe the following graph answer the following questions.



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

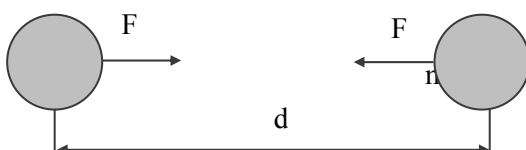


iv. Complete the following table by observing the given figures:

| 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:

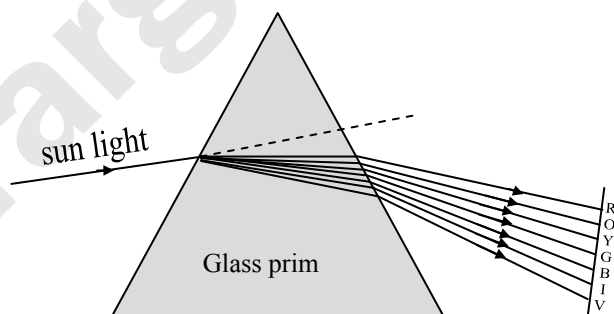


- State Newton's universal law of gravitation.
 - If the distance between the two bodies is tripled, how will the gravitational force between them change?
 - What will happen to gravitational force, if mass of one of the objects is doubled?
- vii. The orbit of a satellite is exactly 35780 km above the 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]

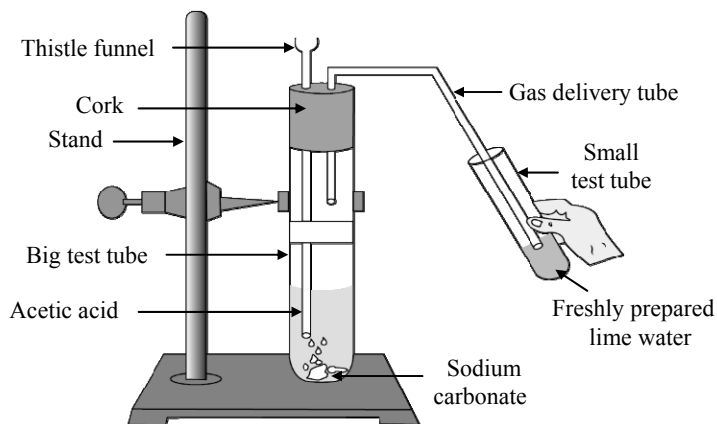
i. Observe the given diagram and answer the questions :



- Name the process shown in the figure.
- Name the colour that deviates the most.
- Name the colour that deviates the least.
- Name any *one* phenomenon in the nature which is based on the above process.
- 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.