



Activity Sheet 3

Time: 2 Hrs

Std: 10th

Science and Technology: Part 1

Marks: 40

Instructions :

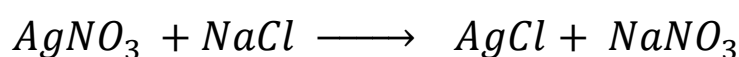
1. It is necessary to solve all the questions.
2. Draw neat and labelled diagrams wherever necessary.
3. Start every new main question on separate page.
4. Figures on the right indicate marks.
5. For each Multiple Choice Question (1.B), ONLY first answer will be considered.
6. Write answer of each MCQ with option number.

Eg. i) a. ii) c.

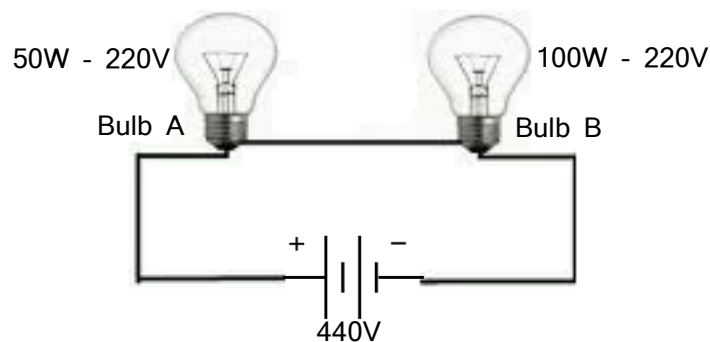
Que.1 A) Solve the following questions

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- i. For freely falling object we can write the Newton's second equation of motion as
- ii. Molecular formula of the chloride of an element X is XCl. This compound is a solid having high melting point. Write name of any element present in the same group as X
- iii. When heat energy is absorbed by object ΔT represents the raise in temperature. What would be ΔT represent if the object loses heat energy?
- iv. Which is the non-ionic compound in the compounds given below.



v. Observe the following figure which bulb get fuse?



B) Choose and write the correct option.

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i. Yesh find out F_1 and F_2 of symmetric convex lens experimentally then which conclusion is true.

- a) $F_1 = F_2$ b) $F_1 > F_2$ c) $F_1 < F_2$ d) $F_1 \neq F_2$

ii. If we gradually increase the angle of incidence of a ray of light passing through prism then

- a) Angle of deviation goes on decreasing.
b) Angle of deviation decreases but after certain value of incident angle, deviation angle increases
c) Angle of deviation goes on increasing.
d) Angle of deviation increases but after certain value of incident angle deviation angle decreases.

iii. Which type of carbon-carbon bonds are present in Vanaspati ghee?

- a) Single b) double c) triple d) single-double

iv. What is the type of the following reaction?

- a) Displacement b) combination c) decomposition d) double displacement

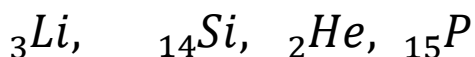
v. Which of the following astronauts travelled through space shuttle 'Discovery' first time?

- a) Kalpana Chawala b) Rakesh Sharma c) Sunita Williams d) Neil Armstrong

Que. 2 Solve any five of the following questions.

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i. Which of this element belong to the period 3? Write their electronic configuration.



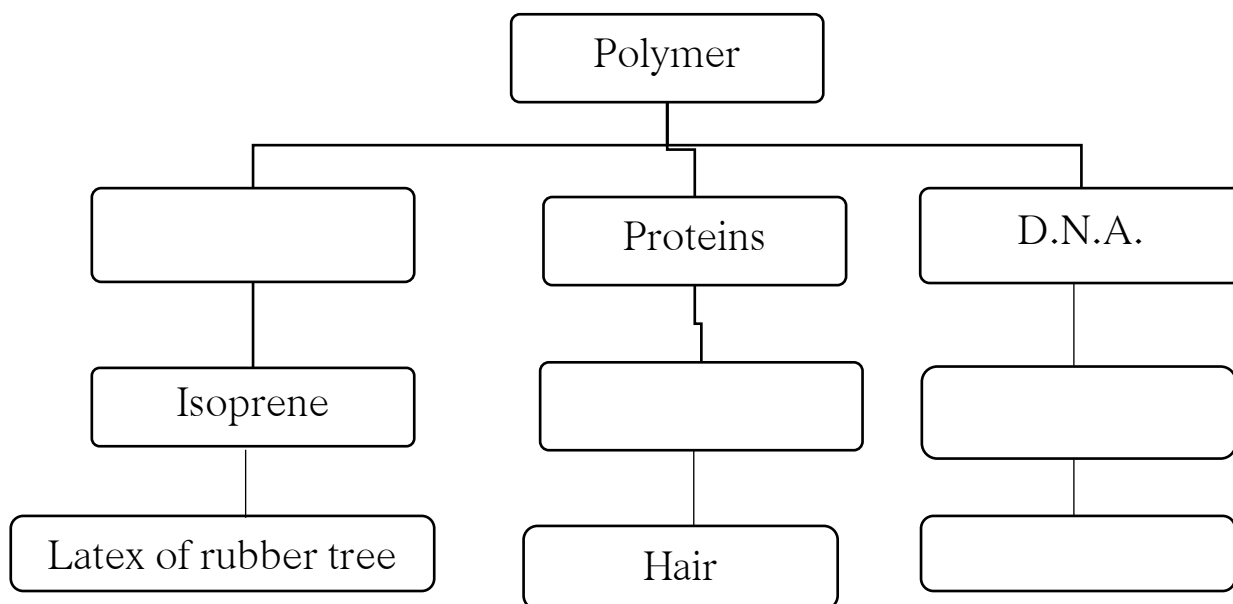
ii. If the speed of light in a medium is 1.5×10^8 m/s. What is the absolute refractive index of the medium?

iii. Prove the following statement.

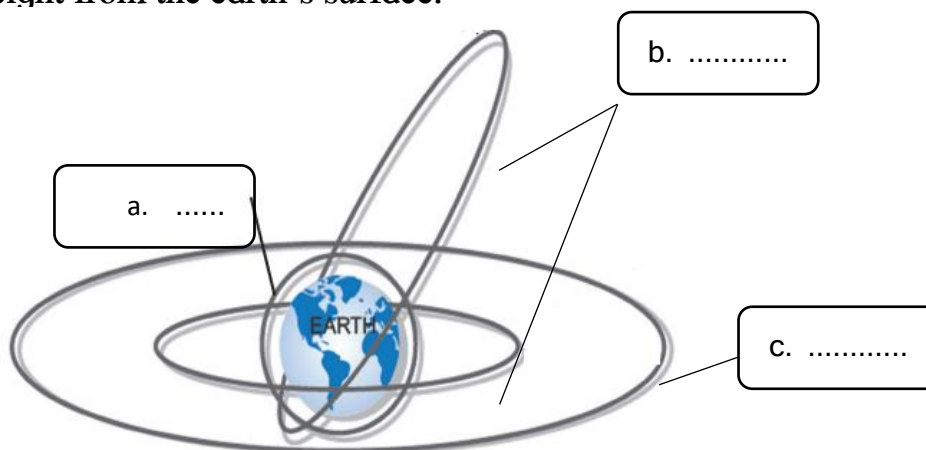
If the angle of incidence and angle of emergence of a light ray falling on a glass slab are i and e respectively. Prove that $i = e$.

iv. At which position will you keep an object in front of convex lens to get a real image smaller than the object? Draw a figure.

v. Complete the following flow chart.



- vi. Why geostationary satellites not useful for studies of Polar Regions?
- vii. Write the proper name of the orbits of satellites shown in the following figure with their height from the earth's surface.



Que 3. Solve any five of the following questions.

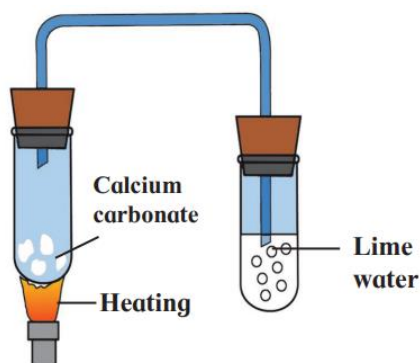
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- i. The radius of the planet A is half the radius of planet B. If the mass of A is M_A , what must be the mass of B so that the value of g on B is half that of its value on A?
- ii. Study the radius of the element given below and answer the following questions.

elements	K	Na	Rb	Cs	Li
Atomic radius (pm)	231	186	244	262	151

- a) Which of above element have smallest atom?
- b) In which group of modern periodic table the above element are belongs?
- c) What is the periodic trend observed in the variation of atomic radii down a group?

iii. Study the following figure and answer questions.



- After heating Calcium carbonate, which gas is formed in a test tube?
- When we pass this gas through limewater what change, did you observe?
- Write down the chemical reaction showing the product formation after heating the Calcium carbonate.

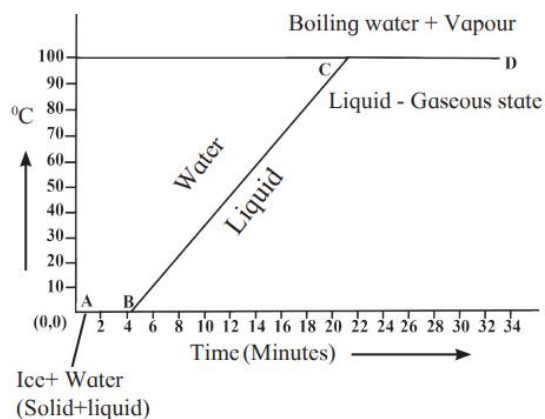
iv. Give scientific reasons.

While preparing dil. Sulphuric acid from concentrated conc. sulphuric acid in the laboratory the concentrated sulphuric acid is, add slowly to water with constant stirring.

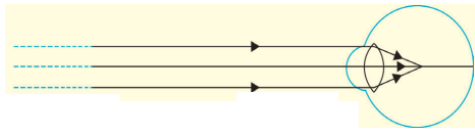
v. Write the IUPAC names of the following structural formulae.



vi. Explain the following temperature vs time graph.



vii. Observer the following diagram and answer the questions.



- Which eye defect is shown in this diagram?
- What are the possible reasons for this eye defect?
- How this defect is corrected, write it in brief?

Que. 4 Solve any one of the following questions.

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i. Study the following principle and answer the question.

A force is exerted on the current carrying conductor. The direction of this force depends on both the direction of the current and the direction of the magnetic field. This force is maximum when the direction of current is perpendicular to the direction of the magnetic field.

- By which law we can determine the direction of force exerted on the current carrying conductor.
- In which electrical equipment this principle is used.
- Draw a diagram representing construction of this equipment.
- Write the working of this equipment in brief.

ii. Answer the following question.

- What is meant by corrosion?
- Write names of any two methods of prevention of corrosion.
- In which method, metal like copper, aluminium are coated with a thin layer of their oxides by means of electrolysis.
- Explain this method with diagram.