X	First Semester Exam.	
Time : 2 Hrs.	Class : 10th	Total Marks : 40
S.No.	Subject : Science and Technology Paper - 1	
Medium : English		

Note : 1) All questions are compulsory.
2) Draw scientifically correct labelled diagrams wherever necessary.
3) Start writing each main question on a new page.
4) Figures to the right indicate full marks.

Q. 1. A) Select the correct option and write only the alphabet corresponding to the correct option. **(05)**

1) The formula for escape velocity is .....

A) $\sqrt{\frac{2M}{R}}$ B) $\sqrt{\frac{2GM}{R}}$ C) $\sqrt{\frac{GM}{R^2}}$ D) $\sqrt{\frac{GMm}{R^2}}$

2) According to Mendeleev's periodic law, properties of elements are a periodic function of their .....

A) atomic numbers B) atomic masses
C) densities D) boiling points

3) Combustion of coal in air is a ..... reaction.

A) combination B) displacement
C) decomposition D) double displacement

4) When an electric current is passed through a solenoid, it shows magnetic lines of force similar to a .....

A) bar magnet B) horseshoe magnet
C) disc magnet D) spherical magnet

5) The phenomenon in which ice converts into liquid due to applied pressure and then reconverts into ice once the pressure is removed is called .....

A) boiling B) regelation
C) freezing D) evaporation

B) Answer the following questions. (05)

1) Find the odd one out.

Voltmeter, Ammeter, Thermometer, Galvanometer

2) Match the following.

Column A	Column B
i) Modern periodic table	a) Group 17
ii) Halogen	b) Period 2
	c) Atomic number
	d) Group

3) State whether the following statement are True or False.

In a chemical equation the reactants are written on the right hand side and the products on the left hand side. b

4) Write the names from the description.

Nonmetals in the third period.

5) Mark the correct answer in the following questions.

What is the reason for the twinkling of stars ?

a) Explosions occurring in stars from time to time

b) Absorption of light in the earth's atmosphere

c) Motion of stars

d) Changing refractive index of the atmospheric gases

Q. 2. A) Give scientific reasons. (Any two) (04)

1) The weight of an object changes from place to place though its mass is constant.

2) It is recommended to use an air-tight container for storing oil for a long time.

3) In the electric equipment producing heat e.g. iron, electric heater, boiler, toaster, etc. an alloy such as Nichrome is used, not pure metals.

B) Answer the following sub-questions. (Any three) (06)

1) An object takes 5 s to reach the ground from a height of 5 m on a planet. What is the value of g on the planet ?

2) In Dobereiner's triad containing Li, Na, K, if the atomic masses of lithium and potassium are 6.9 and 39.1, then what is the atomic mass of sodium ?

3) Explain the following term with examples.

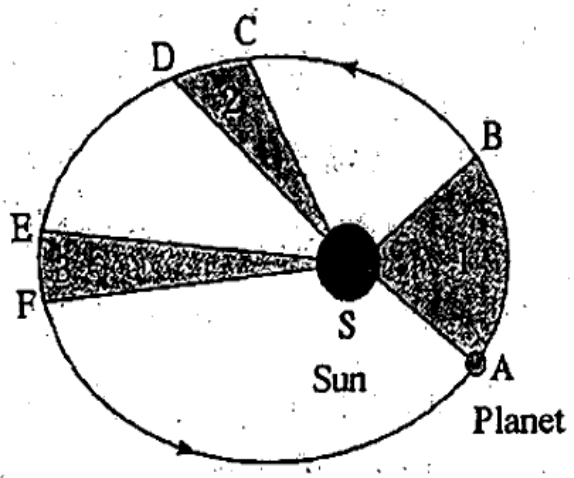
Exothermic reaction

4) What is electric motor ? What is electromagnetic induction ?

5) State the laws of refraction of light.

Q. 3. Answer the following sub-questions. (Any five) **(15)**

1) State the laws related to the given diagram.



2) Explain the limitations of Newland's law of octaves.

3) Explain the following : What is the role of anomalous behaviour of water in preserving aquatic life in regions of cold climate ?

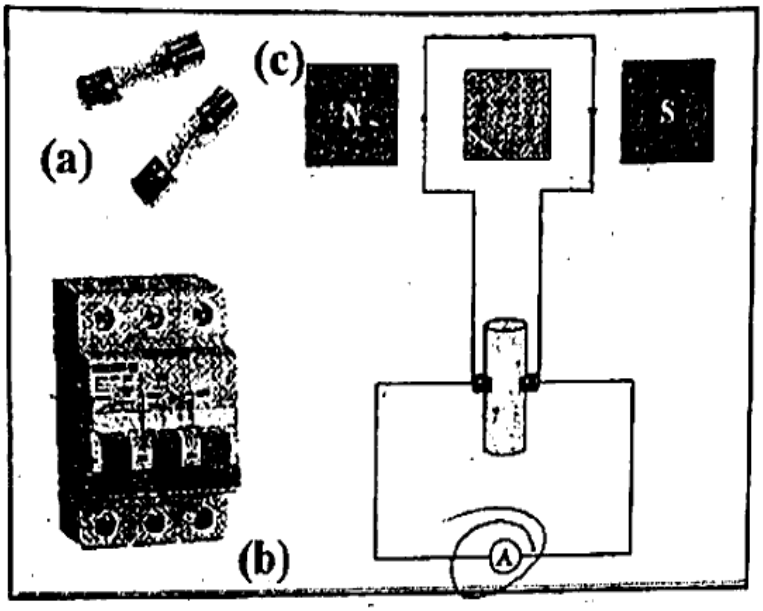
4) How does a short circuit form ? What is its effect ?

5) Explain the similarity and difference in two events, namely adding NaOH to water and adding CaO to water.

6) With a neat labelled diagram, describe in brief the experiment to demonstrate dispersion of sunlight (white light) by a prism.

7) Write Fleming's left hand rule. Draw a neat labelled diagram to illustrate it.

8) Identify the figures and explain their use.



Q. 4. Answer the following questions. (Any one) **(05)**

1) With a neat labelled diagram, explain how the value of g changes while going deep inside the earth.

2) Read the given passage and answer the following questions.

The home electrical connection consists of 'live', 'neutral' and 'earth' wires. The 'live' and the 'neutral' wires have potential difference of 220 V. The 'earth' wire is connected to ground. Due to a fault in the equipment or if the plastic coating on the 'live' and the 'neutral' wires gives away the two wires come in contact with each other and a large current flows through it producing heat. If any inflammable material (such as wood, cloth, plastic, etc.) exists around that place it can catch fire. Therefore a fuse wire is used as a precautionary measure.

Que. : i) name the two wires having potential difference of 220 V. **(01)**

ii) What is short circuit ? **(02)**

iii) Write the function of a fuse. **(02)**

* * * * * * *