

MT

2018 ___ ___ 1100

Seat No.

--	--	--	--	--	--	--	--

MT - SCIENCE & TECHNOLOGY -I (72) - SEMI PRELIM - I : PAPER - 2

Time : 2 Hours

(Pages 4)

Max. Marks : 40

Note :

- (i) All questions are compulsory.
- (ii) Draw neat and labelled diagrams wherever necessary.

Q.1. (A) Solve the following questions : 5

- (1) If objects of equal masses are given equal heat, their final temperature will be different, this is due to difference in their
- (2) **Select the odd man out:**
Sodium oxide, Zinc oxide, Potassium oxide, Magnesium oxide.
- (3) **State whether the following statements are 'True' or 'False', and explain:**
The escape velocity on the Moon is less than that on the Earth.
- (4) **State whether the following statements are true or false. If false, rewrite the correct statements:**
When Unsaturated carbon compounds burn, they give a clean oxidizing flame with lots of black carbon.
- (5) **Find the odd man out:**
INSAT, GSAT, PSLV, IRS

Q.1. (B) Choose the correct alternative and rewrite the sentences : 5

- (1) Which method is used for the purification of more reactive metals?
 - (a) Chemical reduction
 - (b) Roasting
 - (c) Calcination
 - (d) Electrochemical reduction

- (2) When water boils and is converted into steam, then
(a) heat is taken in and temperature remains constant.
(b) heat is taken in and temperatures rises.
(c) heat is given out and temperatures lowers.
(d) heat is given out and temperature remains constant.
- (3) If temperature of water is lowered from 4°C to 3°C, its volume
(a) increases (b) decreases
(c) remains the same (d) fluctuates
- (4) is used in nonstick cookware.
(a) PVC (b) Teflon
(c) Polystyrene (d) Polypropylene
- (5) Which one of the following is a Low Earth Orbit (LEO) satellite?
(a) Navigational satellite
(b) Geostationary satellite
(c) International Space Station
(d) All of the above

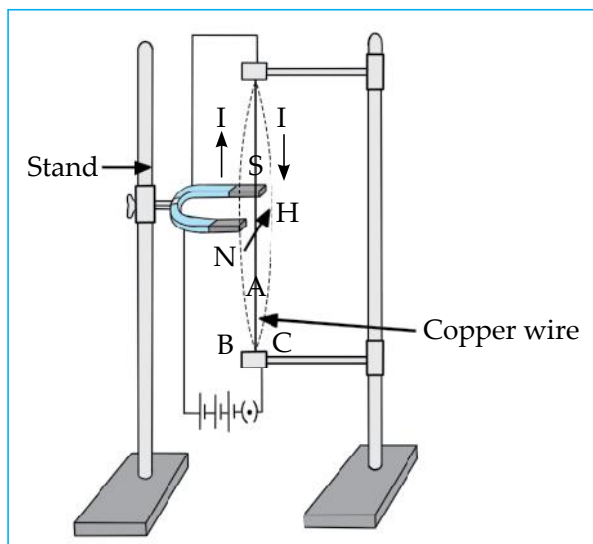
Q.2. Solve the following questions : (Any 5)

[10]

- (1) **Give Scientific Reason:**
Anodes need to be replaced from time to time during the electrolysis of alumina.
- (2) Distinguish between : Direct current and Alternating current
- (3) **Write structural formula for the following IUPAC name.**
Butanoic acid : Molecular formula- $C_4H_8O_2$
- (4) How much heat energy is necessary to raise the temperature of 5 kg of water from 20°C to 100 °C.
- (5) **Write chemical equation for the following reaction:**
When steam is passed over aluminium.
- (6) **Differentiate between:** Saturated and unsaturated Hydrocarbons.
- (7) Explain the Role of Latent heat in the change of state of a substance.

Q.3. Solve the following questions : (Any 5)**[15]**

(1) Answer the following based on the diagram given below.



- (i) What is the direction of the force experienced by the conductor when the direction of current is downwards?
 - (ii) If the conductor experiences a force inwards, then what would be the direction of current?
 - (iii) Which rule helps us to find the force experienced by a current carrying conductor in the above diagram?
- (2) An electrical iron uses a power of 1100 W when set to a higher temperature. If set to a lower temperature, it uses 330 W power. Find out the electric current and the respective resistance when connected to a 220 V supply.
- (3) (a) Define Relative humidity.
 (b) On what basis and how will you determine whether air is saturated with vapour or not?
- (4) (a) Identify the type of the following reaction of carbon compounds.
 $\text{CH}_3\text{-CH}_2\text{-CH}_2\text{-CH}_2\text{-OH} \rightarrow \text{CH}_3\text{-CH}_2\text{-CH}=\text{CH}_2 + \text{H}_2\text{O}$
 (b) Explain the reaction of Ethanoic acid with Sodium carbonate.
- (5) A thermally insulated pot has 150 g ice at temperature 0 °C. How much steam of 100 °C has to be mixed to it, so that water of temperature 50 °C will be obtained?

- (6) (a) Draw a neat and labelled diagram of Electrolytic reduction of alumina.
(b) Define Ores.
- (7) With the help of an example explain what is meant by a homologous series.

Q.4. Solve the following questions : (Any 1)**[5]**

- (1) (a) Write the electrode reaction for electrolysis of molten Magnesium chloride and Calcium chloride.
(b) An ore on treatment with dilute hydrochloric acid produces brisk effervescence. What type of ore is this? What steps will be required to obtain metal from the enriched ore?
- (2) (a) Draw a neat labelled diagram of AC generator.
(b) State the principle on which AC generator works.
(c) Explain the working of an AC generator.

Best Of Luck 