

# MT

2017 \_\_\_ \_\_\_ 1100

Seat No. 

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**MT - SCIENCE & TECHNOLOGY -I (72) - SEMI PRELIM - I : PAPER - 3**

**Time : 2 Hours**

**(Pages 3)**

**Max. Marks : 40**

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**Note :**

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

**Q.1. (A) Fill in the blanks : 3**

- (1) 10% NaCl is known as \_\_\_\_\_ .
- (2) Very fine particles mainly scatter \_\_\_\_\_ light.
- (3) The phenomenon of change in the \_\_\_\_\_ of light when it passes from one transparent medium to another is called refraction.

**Q.1. (B) True or False : 2**

- (1) Salts of strong acids and weak base are basic in nature.
- (2) Electric generator is used to generate current.

**Q.2. Rewrite the following statements by selecting the correct alternative : 5**

- (1) Litmus paper or the litmus solution is obtained from ..... .
  - (a) Moss
  - (b) Rose
  - (c) Hibiscus
  - (d) Lichen
  
- (2) Which salt is formed when an iron nail is reacted with concentrated HCl ?
  - (a) Ferrous sulphate
  - (b) Ferrous chloride
  - (c) Calcium chloride
  - (d) Calcium sulphate

- (3) When a ray of light travels from air to glass and strikes the surface of separation at  $90^\circ$ , then it .....
- (a) bends towards the normal
  - (b) bends away from the normal
  - (c) passes without bending
  - (d) reflects to air
- (4) A ray of light strikes the glass slab at an angle of  $40^\circ$ . What is the angle of incidence ?
- (a)  $50^\circ$
  - (b)  $25^\circ$
  - (c)  $40^\circ$
  - (d)  $100^\circ$
- (5) At the time of short circuit, the current in the circuit .....
- (a) increases
  - (b) decreases
  - (c) remains same
  - (d) increases in steps

**Q.3. Answer the following in short : (Any 5)****10**

- (1) Distinguish between : Washing soda and Baking soda
- (2) Give scientific reason : Baking Soda is used while making cakes.
- (3) Explain the following chemical reaction with the help of balanced equation : Aluminium reacts with dilute hydrochloric acid.
- (4) Give scientific reason : The sky appears dark instead of blue to a person located in space.
- (5) Give scientific reason :  
A magnetic crane is used to load and transport scrap iron.
- (6) The velocity of light in a medium is  $1.5 \times 10^8$  m/s. What is the refractive index of the medium w.r.t. air, if the velocity in air is  $3 \times 10^8$  m/s ?
- (7) Draw a neat labelled diagram : Dispersion of light through prism.

**Q.4. Answer the following in brief : (Any 5)****15**

- (1) Write short note on : Water of crystallization (with proper examples)
- (2) Write a short note on indicators with proper example.
- (3) Explain electrolysis of sodium chloride ?

- (4) What do you mean by dispersion? Name the different colours of light in the proper sequence in the spectrum of light.
- (5) State the characteristics of magnetic lines of force.
- (6) Explain how formation of a rainbow occurs.
- (7)
  - (a) Define Refraction.
  - (b) Coin at the bottom of glass jar containing water appears to be floating.

**Q.5. Answer in detail: (Any 1)****5**

- (1) Explain the working of AC generator with a neat labelled diagram.
- (2)
  - (a) Take 2 gm of Aluminium carbonate in boiling test tube, add dil. HCl to it. Do not allow the gas to escape. Through the delivery tube allow the gas to pass through decanted solution of chalk with H<sub>2</sub>O. What are your observations?
  - (b) Take a small amount of red oxide (primer used before paint). Add to it a few drops of dil. HCl. What do you observe? What is chemical formula of red oxide?
  - (c) Define the following : Strong acids

*Best Of Luck* 🍀