

Q.P. SET CODE
<b>B</b>

# MT - X

Seat No. 

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2017 \_\_\_ 1100 - MT - X - SCIENCE & TECHNOLOGY - I (72) - SET - B (E)

**Time : 2 Hours**

**(Pages 3)**

**Max. Marks : 40**

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**Note :**

- (i) Draw well-labelled diagrams wherever necessary.
- (ii) All questions are compulsory.
- (iii) Students should write the answers of questions in sequence.

**Q.1. (A) Answer the following sub-questions :**

**(1) Fill in the blanks and rewrite the complete statements : 2**

- (i) The ohm is the SI unit of .....
- (ii) An electric motor converts electrical energy into .....

**(2) State whether the following statements are true or false and if false, write the correct statement: 2**

- (i) The pH of rainwater is 7.
- (ii) According to the law of constant proportion, the total mass of the reactants is equal to the total mass of the products.

**(3) Find the odd man out : 1**

- (i) Copper, Silver, Aluminium, Wood

**Q.1. (B) Rewrite the following statements by selecting the correct options : 5**

- (1) 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

- (2) The reaction  $\text{KNO}_{3(s)} + \text{H}_2\text{O}_{(l)} + \text{Heat} \rightleftharpoons \text{KNO}_{3(aq)}$  is a/an ..... reaction.
- (a) exothermic (b) endothermic  
(c) oxidation (d) reduction
- (3) When the resistance of the conductor increases then the current.
- (a) increases (b) decreases  
(c) remain same (d) None of these
- (4) Dilute NaOH can be tested with .....
- (a) red litmus paper (b) blue litmus paper  
(c) lime water (d)  $\text{Na}_2\text{CO}_3$
- (5) Which of the following represents the mirror formula ?
- (a)  $\frac{1}{v} + \frac{1}{u} = \frac{1}{f}$  (b)  $\frac{1}{v} - \frac{1}{u} = \frac{1}{f}$   
(c)  $\frac{1}{v} + \frac{1}{u} = \frac{1}{R}$  (d)  $\frac{1}{u} - \frac{1}{v} = \frac{1}{f}$

**Q.2. Answer the following subquestions : (any five)****10**

- (1) A ray diagram for object position between  $2F_1$  and  $F_1$  for a convex lens.
- (2) Give scientific reason : The sky appears dark instead of blue to a person located in space.
- (3) State the Flemming's Right Hand Rule.
- (4) Distinguish between s-block elements and p-block elements.
- (5) Write the balanced chemical equation for the given word equation:  
Plaster of Paris is mixed with water.
- (6) Write a note on Eutrophication.

**Q.3. Answer the following subquestions : (any five)****15**

- (1) The speed of light in water and glass is  $2.2 \times 10^8$  m/s and  $2 \times 10^8$  m/s respectively. What is the refractive index of (i) water w.r.t. glass (ii) glass w.r.t. water?
- (2) Explain the merits of Modern Periodic Table.
- (3) Find the expression for resistivity of a material.

- (4) (a) Define Refraction.
- (4) (b) State the Laws of Refraction.
- (5) Explain the pH scale with proper diagram.
- (6) What adverse effects does Ozone depletion have? Why does ozone get depleted?

**Q.4. Answer the following subquestion : (any one)**

**5**

- (1) When do you say that the resistors are connected in series? Find the expression for the resistors connected in series. Draw a circuit diagram.
- (2) Give the construction and working of an electric motor.

*Best Of Luck* 🍀