

MT

2017 ___ ___ 1100

Seat No.

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MT - SCIENCE & TECHNOLOGY -I (72) - SEMI PRELIM - I : PAPER - 5

Time : 2 Hours

(Pages 3)

Max. Marks : 40

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) Reaction of acids and metals results in evolution of _____ gas.
- (2) The phenomenon of change in the _____ of light when it passes from one transparent medium to another is called refraction.
- (3) _____ coloured light is scattered the least by fog or smoke.

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

- (1) The process of dissolving an acid or a base in water is highly exothermic one.
- (2) Magnetic field increase as we go away from a magnet.

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

- (1) The pH of a solution cannot be
 - (a) negative
 - (b) more than 14
 - (c) less than zero
 - (d) all of these

- (2) Which of the following properties are shown by carbon dioxide ?
 - (a) Turns lime water milky
 - (b) It is odourless
 - (c) It is colourless
 - (d) All the three (a), (b) and (c)

- (3) When a ray of light travels from air to glass and strikes the surface of separation at 90° , 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° . What is the angle of incidence ?
- (a) 50°
 - (b) 25°
 - (c) 40°
 - (d) 100°
- (5) At the time of short circuit, the current in the circuit
- (a) increases
 - (b) decreases
 - (c) remains same
 - (d) increases in steps

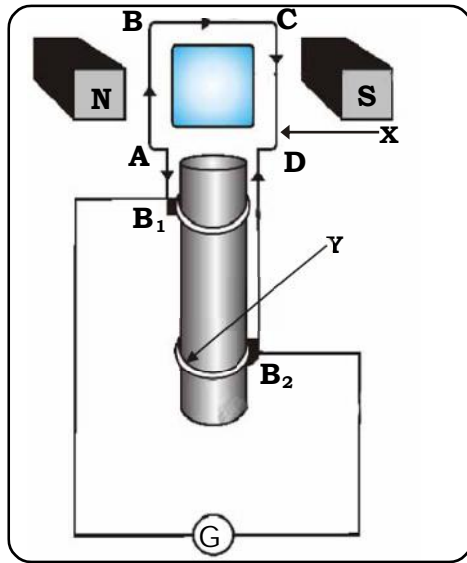
Q.3. Answer the following in short : (Any 5)**10**

- (1) Distinguish between : Washing soda and Baking soda
- (2) Give scientific reason : There are various brands of bleaching powder in the market.
- (3) Explain the following chemical reaction with the help of balanced equation : Baking soda (sodium hydrogen carbonate) reacts with dilute hydrochloric acid.
- (4) Give scientific reasons : It is possible to enjoy a rainbow at fountains in any season.
- (5) Give scientific reasons : Wires carrying electricity should not be touched bare footed.
- (6) The velocity of light in a medium is 1.5×10^8 m/s. What is the refractive index of the medium w.r.t. air, if the velocity in air is 3×10^8 m/s ?
- (7) Draw a neat labelled diagram : Dispersion of light through prism.

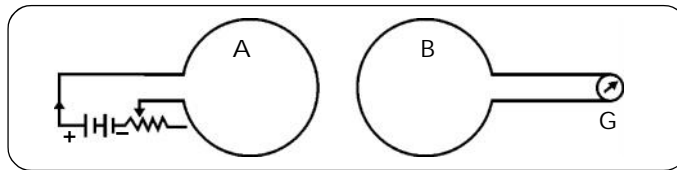
Q.4. Answer the following in brief : (Any 5)**15**

- (1) Write short note on : Water of crystallization (with proper examples)
- (2) Explain the importance of pH in everyday life.
- (3) Explain electrolysis of sodium chloride ?
- (4) Explain how formation of a rainbow occurs.

- (5) Answer the following from the given diagram.



- (a) State the principle on which generator works.
 (b) Label X and Y in the diagram.
 (c) Which type of current is generated in the above figure?
 (6) Observe the figure. If the current in the coil A is changed, will some current be induced in the coil B? Explain.



- (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) (a) Define electric motor
 (b) Explain the working of an electric motor.
- (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_2O . 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 base

Best Of Luck 🍀