

MT

2017 ___ ___ 1100

Seat No.

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MT - SCIENCE & TECHNOLOGY -I (72) - SEMI PRELIM - I : PAPER - 6

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) Hydrogen ions which cannot exist alone combine with water to form _____ ions.
- (2) _____ is an alloy of aluminium, nickel, cobalt.
- (3) The band of seven colours formed when white light is passed through a prism is called _____ .

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

- (1) Impure sodium chloride is known as rock salt.
- (2) Magnetic poles exists in pairs.

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

- (1) If the pH value of a solution is one, the solution is
 - (a) a strong acid (b) a strong base
 - (c) a very weak acid (d) a very weak base

- (2) What is the chemical name of baking soda ?
 - (a) Sodium carbonate (b) Calcium carbonate
 - (c) Sodium bicarbonate (d) Sodium sulphate

- (3) 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°
- (4) Rakesh performs the experiments on tracing the path of a ray of light passing through a rectangular glass slab for different angles of incidence. He observes that in all cases
- (a) $\hat{e}_i > \hat{e}_r$ but $\hat{e}_i = \hat{e}_e$
(b) $\hat{e}_i < \hat{e}_r$ but $\hat{e}_i = \hat{e}_e$
(c) $\hat{e}_i > \hat{e}_e$ but $\hat{e}_i = \hat{e}_r$
(d) $\hat{e}_i < \hat{e}_e$ but $\hat{e}_i = \hat{e}_r$
- (5) The magnetic field in solenoid depends on _____ .
- (a) current and number of turns per unit length
(b) current only
(c) Number of turn per unit length only
(d) material

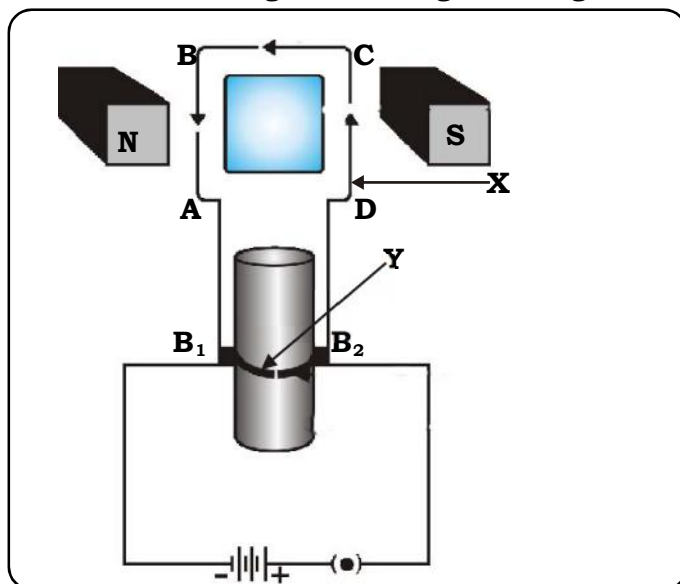
Q.3. Answer the following in short : (Any 5)**10**

- (1) Distinguish between : Acid and Base
- (2) Give scientific reason : There is itching and irritation when red ants sting us.
- (3) Explain the following chemical reaction with the help of balanced equation : When dry slaked lime reacts with chlorine gas.
- (4) Give scientific reason : A magnetic crane is used to load and transport scrap iron.
- (5) Distinguish between : Direct current and Alternating current
- (6) What is the refractive index of the second medium w.r.t. the first medium if light moves through the first medium with a velocity 2×10^8 m/s, which changes to 1.25×10^8 m/s in second medium ?
- (7) Draw a neat labelled diagram : Solenoid

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

- (1) Write a short note on neutralization reaction.
- (2) Write a short note on the pH scale.
- (3) What are the uses of baking soda? or State applications of baking soda.

- (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) Answer the following from the given diagram.



- (a) State the principle on which motor works.
- (b) Label X and Y in the diagram.
- (c) Which device is responsible for changing the direction of current ?
- (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) Write a short note on : Refraction observed in the atmosphere.
- (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 : Weak acids.

Best Of Luck 🍀