MT

2017 ___ ___ 1100 **Seat No.** | | | | | | | |

MT - SCIENCE & TECHNOLOGY - I (72) - SEMI PRELIM - II : PAPER - 1

Time : 2 Hours **(Pages 4)** **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) ..... group contains all gases at room temperature.

(2) 1 mA = ... A.

(3) A ray of light parallel to principal axis after reflection from concave mirror passes through ..... .

Q.1. (B) State whether the following statements are true or false and if false, write the correct statement: **2**

(1) The thermal decomposition of calcium carbonate is used in black and white photography.

(2) The principal focus of a concave lens is virtual.

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

(1) To observe the reaction of water on quicklime, ...

(a) quicklime is added to water in a test tube.

(b) a lot of water is added to quicklime.

(c) few drops of water are added to quicklime.

(d) none of these.

(2) What type of an example is the reaction where precipitate is formed by the exchange of ions between the reactants ?
(a) Combination reaction
(b) Decomposition reaction
(c) Displacement reaction
(d) Double displacement reaction

(3) Which of the following relations is true for a spherical mirror ?
(a) $f = \frac{R}{2}$ (b) $f = 2R$
(c) $f = R$ (d) $f = \frac{R}{4}$

(4) A student obtained a sharp image of a window grill on a screen using a convex lens. For better results, the teacher suggested focusing on a distant tree instead of grill. In which direction should the lens be moved to get the sharp image of the tree?
(a) away from the screen
(b) behind the screen
(c) towards the screen
(d) far away from the screen

(5) A straight line plot is obtained when current is plotted against potential difference. Which of the following law is verified ?
(a) Faraday's law (b) Maxwell's law
(c) Ohm's law (d) Fleming's left hand rule

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

(1) Explain the following chemical reaction with the help of balanced equation :
Plaster of Paris is mixed with water.
(2) Give scientific reason : Halogens are placed in group VII A.
(3) Distinguish between : Alkali metals and Alkaline earth metals.
(4) Explain the following chemical reaction with the help of balanced equation :
Calcium carbonate is heated.

(5) Give scientific reason :
The melting point of filament of a bulb is very high.

(6) Draw a neat and labelled diagram :
A ray diagram for object between infinity and centre of curvature for a concave mirror.

(7) Distinguish between : Voltmeter and ammeter.

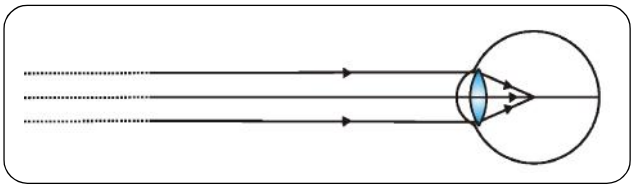
Q.4. Answer the following in brief : (Any 5) **15**

(1) Explain the demerits of Mendeleev's periodic table.

(2) What do you understand by the term redox reaction? Explain with one example.

(3) (a) Give scientific reason : Chips manufacturers flush bags of chips with nitrogen.
(b) Define : Endothermic reaction

(4) Given below is a diagram showing a defect of human eye.



Study it and answer the following questions :
(a) Name the defect shown in figure.
(b) Give two possible reasons for this defect of eye in human being.
(c) Name the type of lens used to correct the eye defect.

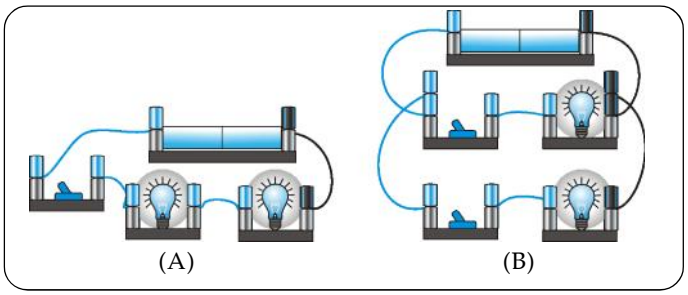
(5) What are the rules for drawing ray diagrams for the formation of image by spherical mirror ?

(6) (a) State Ohms' Law.
(b) What is the SI unit of resistivity?

(7) An object 3cm in size, is placed at 20 cm in front of a concave mirror of focal length 12cm. At what distance from the mirror should a screen be placed in order to obtain a sharp image? Also find the nature and size of the image.

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

(1) Look at the figure and answer the following :



(i) Name the arrangement in (A)

(ii) Name the arrangement in (B)

(iii) In which case would the resistance be less ?

(iv) In which case would the bulb glow brighter? Why ?

(2) Explain the four blocks of periodic table.

Best Of Luck 👍