# BOARD QUESTION PAPER : OCTOBER 2014
# SCIENCE AND TECHNOLOGY

**Time: 3 Hours** **Marks: 80**

***(This Board paper is as per old Question paper format.)***

**Note:**
i. Use the same answer-sheet for Section A and Section B.
ii. Draw well-labelled diagrams wherever necessary.
iii. All questions are compulsory.
iv. Students should write the answers of questions in sequence.

## SECTION A

**Q.1. (A) (a) Fill in the blanks and rewrite the statements:** **[2]**

i. Elements showing properties of both metals and non-metals are known as _____.
ii. The device used for producing current is called a _____.

**(b) Rewrite the following table so as to match second and third column with first column:** **[2]**

| Column I | Column II | Column III |
|---|---|---|
| i. Myopia | a. Old age problem | 1. Bifocal lens |
| ii. Presbyopia | b. Near-sightedness | 2. Concave lens |

**(c) State whether the following statements are True or False:** **[1]**

The SI unit of charge is coulomb.

**(B) Choose the correct alternative and rewrite the following sentence:** **[5]**

i. Phenolphthalein is _____ type of Indicator.
(A) Natural Indicator (B) Universal Indicator
(C) Synthetic Indicator (D) None of the above

ii. Which of the following is not required to find the pH of a given solution?
(A) pH paper (B) Litmus paper
(C) Standard pH value chart (D) Universal indicator

iii. When the resistance of the conductor increases, then the current will _____
(A) Increase (B) Decrease
(C) Remain the same (D) None of the above

iv. If three resistors 2 ohm, 3 ohm and 4 ohm are connected in series, then effective resistance in a circuit will be _____ ohm.
(A) 9 (B) 6
(C) 1 (D) 5

v. A ray of light strikes the glass slab at an angle of 50°. The the angle of incidence will be _____
(A) 50° (B) 90°
(C) 60° (D) 40°

**Q.2. Answer the following questions (any five):** **[10]**

i. State Mendeleev's periodic law.
ii. Name two elements having a single electron in their outermost shell.
iii. Grills of doors and windows are always painted before they are used. Give reason.
iv. State the laws of refraction.

v. Draw a well labelled diagram to show refraction of light through glass slab.
vi. Name two human diseases caused due to water pollution.

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

i. What is corrosion? Do gold ornaments corrode? Justify.
ii. If pH value of solution 'A' is 8, pH value of solution 'B' is 7 and pH value of solution 'C' is 5.5, then:
    1. Which solution is acidic?
    2. Which solution is basic?
    3. Which solution is neutral?
iii. Write three safety measures in using electricity.
iv. What do you mean by dispersion? Name the different colurs of light in the proper sequence in the spectrum of light.
v. State the principles of electric motor and electric generator.
vi. State the role of citizens in pollution control. Give three efforts taken in order to reduce pollution.

**Q.4. Answer any one of the following questions:** **[5]**

**(A)** (a) What should I choose _____.
    i. for decreasing resistance in a circuit.
    (Resistors in series / Resistors in parallel)
    ii. for getting protection from electric current.
    (Nickel / Ebonite)
    iii. to measure the current in the circuit.
    (Ammeter / Voltmeter)

(b) My mother was operating the washing machine on Sunday morning. Suddenly, she saw a spark coming out of the electric board and the electric current in the house failed. An electrician was called to look into the matter. What should he have noticed?

**(B)** (a) In which equipment/s do you find _____
    i. a concave mirror
    ii. a convex lens
    iii. reflecting mirrors?

(b) My grandfather uses a bifocal lens in his spectacle. Explain, why.

## SECTION B

**Q.5. (A) (a) Fill in the blanks and rewrite the statements:** **[3]**

i. The general formula of Alkane is _____.
ii. _____ is the largest gland in the body.
iii. The loss of water from the plants is known as _____.

**(b) State whether the following statements are True or False:** **[2]**

i. The daughter cells produced by asexual reproduction are genetically identical to the parent cell.
ii. In sexual mode of reproduction, greater diversities are generated.

**(B) Choose the correct alternative and rewrite the following :** **[5]**

i. Ethanoic acid _____
    (A) is odourless (B) has a pungent smell
    (C) has smell of rotten egg (D) has a vinegar like odour

ii. Which of the following is a mode of asexual reproduction?
    (A) Fission (B) Budding
    (C) Spore formation (D) All of the above

iii. In hydra the type of reproduction is _____.
(A) Binary fission (B) Budding
(C) Multiple fission (D) none of the above

iv. Which of the following is not essential for photosynthesis?
(A) Oxygen (B) Carbon dioxide
(C) Sunlight (D) Chlorophyll

v. Ankita bought some Glucose Powder. She felt it was adulterated with starch powder. How would she test it?
(A) by sieving (B) by dissolving it in water
(C) by iodine test (D) all of the above

**Q.6. Answer the following subquestions (any five):** **[10]**

i. Sodium is stored under kerosene. Give reason.
ii. What are hydrocarbons? Give one example.
iii. Distinguish between: Autotrophic nutrition and Heterotrophic nutrition.
iv. Draw a neat labelled diagram of the 'Liver'.
v. What is pollination? Mention its types.
vi. Define Heredity. Give two examples.

**Q.7. Answer any five of the following subquestions:** **[15]**

i. Write three methods of preventing rusting of iron.

ii. Draw a well labelled diagram of extraction of Aluminium. Write the anode reaction in electrolytic reduction of Alumina.

iii. What are functional groups? Name any two compounds containing functional groups.

iv. Classify the following as voluntary and involuntary movements:
(a) Coughing
(b) Food getting digested
(c) Moving a table
(d) Beating of heart
(e) Function of the kidneys
(f) Flying a kite

v. Explain with two examples, movements in plants which are growth independent.

vi. What is meant by vegetative propagation? Name the vegetative parts through which Potato and Bryophyllum reproduce.

**Q.8. Write the answer of any one question given below:** **[5]**

**(i)** (a) How many pairs of autosomes and pairs of sex chromosomes are present in a human being? 2
(b) Which chromosomes are present in a Female? 1
(c) Which chromosomes are present in a Male? 1
(d) How does sex determination take place in human beings? 1

**(ii)** State the powers of Maharashtra Pollution Control Board (MPCB) to control the Air Pollution.