

# BOARD QUESTION PAPER : OCTOBER 2014

## SCIENCE AND TECHNOLOGY

Time: 3 Hours

Marks: 80

### Note:

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

### SECTION A

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

- Elements showing properties of both metals and non-metals are known as \_\_\_\_\_.
- 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]

- Phenolphthalein is \_\_\_\_\_ type of Indicator.  
(A) Natural Indicator (B) Universal Indicator  
(C) Synthetic Indicator (D) None of the above
- 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
- When the resistance of the conductor increases, then the current will \_\_\_\_\_  
(A) Increase (B) Decrease  
(C) Remain the same (D) None of the above
- 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
- A ray of light strikes the glass slab at an angle of  $50^\circ$ . The angle of incidence will be \_\_\_\_\_  
(A)  $50^\circ$  (B)  $90^\circ$   
(C)  $60^\circ$  (D)  $40^\circ$

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

- State Mendeleev's periodic law.
- Name two elements having a single electron in their outermost shell.
- Grills of doors and windows are always painted before they are used. Give reason.
- 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 colours 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.