

# BOARD QUESTION PAPER : MARCH 2018

## SCIENCE AND TECHNOLOGY - I

Time: 2 Hours

Total Marks: 40

**Note:**

- i. Draw well-labelled diagrams wherever necessary.
- ii. All questions are compulsory.
- iii. Students should write the answers of questions in sequence.

### SECTION A

1. (A) (a) Rewrite the following statements with suitable words in the blanks: [2]
- i. 1 calorie = \_\_\_\_\_ joule.
  - ii. The arrangement of elements in a group of three is known as \_\_\_\_\_.
- (b) State whether the following statements are *true* or *false*: [2]
- i. Pollen, Bacteria, Fungal spores are also pollutants.
  - ii. Magnetic lines of force always cross each other.
- (c) Taking into consideration the relationship in the first pair, complete the second pair: [1]
- $2\text{H}_2 + \text{O}_2 \longrightarrow 2\text{H}_2\text{O}$  : Combination Reaction ::  $2\text{HgO} \longrightarrow 2\text{Hg} + \text{O}_2$  : \_\_\_\_\_ .
- (B) Rewrite the following statements by selecting the *correct* options: [5]
- i. When crystals of copper sulphate are strongly heated, the residue obtained is \_\_\_\_\_ .  
(A) red in colour (B) blue in colour  
(C) green in colour (D) colourless
  - ii. Which type of mirror is used by a dentist?  
(A) Plane (B) Convex  
(C) Concave (D) Both (B) and (C)
  - iii. The equivalent resistance of the parallel combination of two resistors of  $60\ \Omega$  and  $40\ \Omega$  is \_\_\_\_\_ .  
(A)  $24\ \Omega$  (B)  $100\ \Omega$   
(C)  $50\ \Omega$  (D)  $240\ \Omega$
  - iv. The litmus paper or the litmus solution is obtained from \_\_\_\_\_ plant.  
(A) Moss (B) Lichen  
(C) Rose (D) Hibiscus
  - v. Which substance when used with butter having butyric acid can cure acidity?  
(A) Lime water (B) Soda water  
(C) Calcium carbonate (D) Lime juice
2. State any *five* of the following: [10]
- i. State Newlands law of Octaves.
  - ii. State the right hand thumb rule.
  - iii. If a bulb of  $60\ \text{W}$  is connected across a source of  $220\ \text{V}$ , find the current drawn by it.
  - iv. Draw a neat and labelled diagram of structure of the human eye.
  - v. Define:
    - a. Radius of curvature of spherical mirror.
    - b. Focal length of spherical mirror.
  - vi. Give scientific reason:  
The sun appears reddish early in the morning.

- 3. Answer any *five* of the following:** **[15]**
- i. Write the merits of the modern periodic table over Mendeleev's Periodic table.
  - ii. What is redox reaction? Explain with *one* example.
  - iii. What is Resistivity? Write the formula of resistivity. Write the SI unit of resistivity.
  - iv. Distinguish:  
Degradable pollutants – Non-degradable pollutants. (any *Three* points.)
  - v. Kavita from 10<sup>th</sup> is using spectacles. The power of the lenses in her spectacles is  $-2.5$  dioptre. Answer the following questions:
    - a. Which lenses are used in her spectacles?
    - b. State the defect of vision Kavita is suffering from.
    - c. Find the focal length of the lenses used in her spectacles.
  - vi. Write the chemical name of bleaching powder and write its properties.
- 4. Answer any *one* of the following:** **[5]**
- i. Explain the construction and working of an electric motor.
  - ii. What is refraction of light? Draw the diagram of refraction of light in glass slab. Write the laws of refraction.