

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

