

BOARD QUESTION PAPER : JULY 2017

SCIENCE AND TECHNOLOGY

Time: 2 Hours

Total Marks: 40

Note:

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

SECTION A

Q.1. (A) Answer the following sub-questions: [5]

(a) Fill in the blanks and rewrite the completed statements: [2]

- _____ group in the periodic table contains elements that are all gases at room temperature.
- Very fine particles mainly scatter _____ light.

(b) State whether the following statements are true or false: [2]

- Magnetic poles exist in pairs.
- Global warming is the desirable aspect of the intensified greenhouse effect.

(c) Considering the relationship in the first pair, complete the second pair: [1]

AgCl : White :: CuI₂ : _____

(B) Rewrite the following statements by selecting the correct options: [5]

- i. The S.I. unit of resistance is _____.

(A) Ohm (B) Ampere
(C) Coulomb (D) Volt

- ii. If a ray of light strikes a glass slab at an angle of 60° with the surface of the slab, the angle of incidence must be _____.

(A) 60° (B) 30°
(C) 40° (D) 120°

- iii. _____ is a decomposition reaction.

(A) $\text{Fe} + \text{S} \longrightarrow \text{FeS}$ (B) $\text{HCl} + \text{NaOH} \longrightarrow \text{NaCl} + \text{H}_2\text{O}$
(C) $\text{CuSO}_4 + \text{Zn} \longrightarrow \text{ZnSO}_4 + \text{Cu}$ (D) $\text{CaCO}_3 \xrightarrow{\Delta} \text{CaO} + \text{CO}_2$

- iv. 1 A = _____ mA.

(A) 10² (B) 10⁻²
(C) 10³ (D) 10⁻³

- v. The power of a convex lens is 2.5 dioptres. Its focal length is _____.

(A) 40 cm (B) 25 cm
(C) $\frac{1}{40}$ cm (D) $\frac{1}{25}$ cm

Q.2. Attempt any five of the following questions: [10]

- Name any two historical monuments affected by acid rain.
- Give scientific reasons:
Atomic size increases down the group.
- Distinguish between convex mirror and concave mirror.
- State the four blocks of the modern periodic table based on the electronic configuration of elements.
- What is a universal indicator? Does Mg(OH)₂ react with sodium hydroxide? If not, why?
- Suggest measures in the following situation:
The use of fossil fuels in villages.

Q.3. Attempt any five of the following questions:

[15]

- i. Find the expression for the resistivity of a material.
- ii. What is corrosion? Do gold ornaments corrode? Justify.
- iii. What is overloading? When does it occur? How can overloading be avoided?
- iv. What is heating effect of electric current? State any four applications of it.
- v. How do acids and bases react with each other? What is the name of the process? What product is obtained out of this reaction?
- vi. State the effect on the magnetic needle in Oersted's experiment when:
 - a. the current is passed through the wire.
 - b. the current through the wire is increased.
 - c. the current through the wire is reversed.

Q.4. Attempt any one of the following questions:

[5]

- i. a. Anuja cannot see the blackboard writing but she can see nearby things.
 1. What is the eye defect she is suffering from?
 2. State the possible reason of her defect.
 3. How is it corrected?
- b. Anuja's father cannot see nearby objects clearly.
 1. What is the eye defect he is suffering from?
 2. How is it corrected?
- ii. Explain the term 'refraction'. State the laws of refraction. Write the refractive index of benzene and diamond.

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SECTION B

Q.1. (A) Answer the following sub-questions: [5]

(a) Fill in the blanks and rewrite the completed statements: [2]

- i. _____ artery takes the blood to the lungs for oxygenation.
- ii. Covalent compounds are generally soluble in _____ solvents.

(b) State whether the following statements are true or false: [2]

- i. Dominant character masks the recessive character.
- ii. E-waste cannot be recycled.

(c) Name the following: [1]

An alloy of copper and zinc.

(B) Rewrite the following statements by selecting the correct options: [5]

- i. For photosynthesis _____ substance is not essential.
(A) Carbon dioxide (B) Chlorophyll
(C) Light (D) Oxygen
- ii. When Hydra becomes matured, _____ takes place in it.
(A) Budding (B) Regeneration
(C) Fragmentation (D) Binary fission
- iii. A solution of $Al_2(SO_4)_3$ in water is _____.
(A) Green (B) Colourless
(C) Blue (D) Pink
- iv. During respiration _____ gas is given out.
(A) Oxygen (B) Hydrogen
(C) Carbon dioxide (D) Nitrogen
- v. The formula of ethanoic acid is _____.
(A) $HCOOH$ (B) C_2H_5COOH
(C) CH_3COOH (D) None of the above

Q.2. Attempt any five of the following: [10]

- i. Draw a neat labelled diagram of a neuron.
- ii. State two functions of MPCB for prevention of water pollution.
- iii. Differentiate between: Detergents and Soaps.
- iv. How can we save electrical energy in day to day life?
- v. Give scientific reasons:
Consuming iodized salt in day to day diet is essential.
- vi. What is a chromosome? How many pairs of autosomes are present in human beings?

Q.3. Attempt any five of the following:**[15]**

- i. An element X on reacting with oxygen forms an oxide X_2O . This oxide dissolves in water and turns red litmus blue. State whether element X is a metal or a non-metal. Explain with a proper example.
- ii. Why does menstruation occur?
- iii. Define functional group and complete the following table:

Sr. No.	Functional group	Compound	Formula
a.	_____	_____	C_2H_5OH
b.	_____	_____	CH_3CHO

- iv. Name one metal each occurring as:
 - a. A sulphide
 - b. A carbonate
 - c. An oxide
- v. What is a reflex action? Explain it with two examples.
- vi. Why are family planning measures needed in our country?

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

- i. Explain the human excretory system with the help of a suitable diagram.
- ii. How is sex determined in the human being? Explain with the help of a diagram.