

S.S.C. Preliminary Examination – 1

SCIENCE & TECHNOLOGY

Time: 2½ Hours

Total Marks: 60

Note:

- i. All questions are compulsory.
- ii. Draw diagrams wherever necessary.

SECTION A**Marks: 30****Q.1. Answer any three of the following:** [6]**(A) Fill in the blanks and rewrite the complete statement:** [2]

- 1) The zig-zag line of elements in modern periodic table contains _____.
- 2) _____ is the apparent random wavering of the hot air rising above the heated roads.

(B) Match the columns: [2]

Column A	Column B
1) Ca, Mg, Sr	a) Alloy of Cu, Mn and Ni
2) Na, K, Li	b) Alkaline earth metals
3) Manganin	c) Alloy of Ni, Cr, Mn and Fe
4) Nichrome	d) Alkali metals
	e) Alloy of Ni and Cr

(C) State whether the following statements are true or false and if false correct the statement: [2]

- 1) Freshly produced oxygen in the chemical reaction is called nascent oxygen.
- 2) The output of a dynamo can be shown by glowing of a bulb.

(D) Answer in one sentence: [2]

- 1) What is the commercial unit of electric power?
- 2) What is near point of a human eye?

Q.2. Answer any three of the following: [6]

- 1) Draw a ray diagram to show the position of the image formed by a convex lens for an object placed between the principal focus and the optical centre.
- 2) Give scientific reason: Edible oil is not allowed to stand for a long time in an iron or tin container.
- 3) Give the use of:
 - i. Baking soda
 - ii. Electric fuse



- 4) Name the following (any four):
- A triad
 - Substance with chemical formula $3\text{CaO} \cdot \text{Al}_2\text{O}_3 \cdot 6\text{H}_2\text{O}$
 - Instrument used to detect presence of current in a circuit
 - Old age hypermetropia
 - Carbolic acid in butter

Q.3. Answer the following questions:**[12]**

- Write short notes on any two of the following:
 - Solenoid
 - Compound microscope
 - Steps involved in writing a balanced chemical equation
- Give the merits and demerits of the following:
 - Mendeleev's periodic table
 - Household remedies for physical ailments
- Give functions of any two of the following:
 - Pupil of human eye
 - Mica sheet in electric iron
 - Split ring commutator of an electric motor

Q.4. Answer briefly any one of the following:**[6]**

- Amit cannot see the words written on the blackboard but can read his text book easily. What is his eye defect? Why is it caused? How can it be corrected? Draw a diagram to show the correction of the defect using a lens.
- Explain the construction and working of an electric generator with the help of a neat and labelled diagram.

SECTION B**Marks: 30****Q.1. Answer any three of the following:****[6]****(A) Fill in the blanks and rewrite the complete statement:****[2]**

- The property of direct bonding between atoms of the same element to form a long-chain is called _____.
- The function of caecum and appendix in mammals is _____ of cellulose.

(B) Match the columns:**[2]**

Column A	Column B
1) Regeneration	a) Bryophyllum
2) Small intestine	b) Erepsin
3) Fragmentation	c) Planaria
4) Stomach	d) Spirogyra
	e) Pepsin

(C) State whether the following statements are true or false and if false correct the statement:**[2]**

- 1) Each side of our brain controls the same side of our body.
- 2) 24 carat gold is 100% pure.

(D) Answer in one sentence:**[2]**

- 1) What is allotropy?
- 2) What is glycolysis?

Q.2. Answer any three of the following:**[6]**

- 1) Give scientific reason: Plants are kept in the dark before determining the factors essential for photosynthesis.
- 2) Draw a neat and labelled diagram to show the action of steam on metals.
- 3) What will you do:
 - i. to dissolve the chlorophyll of the leaf in Ganang's light screen experiment.
 - ii. to control sugar level of blood
- 4) Name the following (any four):
 - i. The process used for heating ores of carbonate
 - ii. IUPAC name of $\text{HC} \equiv \text{C} - \text{CH}_2 - \text{CH}_3$
 - iii. Hormone that inhibits growth leading to wilting of leaves
 - iv. Common ore of Alumina
 - v. Non-functional organ

Q.3. Answer the following questions:**[12]**

- 1) Write short notes on any two of the following:
 - i. General properties of ionic compounds
 - ii. Haemodialysis
 - iii. Cloning

- 2) Give the merits and demerits for any two of the following:
- Usage of contraceptives
 - Asexual reproduction
 - Detergent over soap
- 3) Give functions of any two of the following:
- Seminal vesicle and prostate gland
 - Mucus in the stomach
 - Functional group

Q.4. Answer briefly any one of the following:**[6]**

- 1) With the help of a diagram (Punnett square), show a Mendelian experiment where tall pea plant bearing red flowers is crossed with a short pea plant bearing white flowers. Write both the phenotypic and genotypic ratio for F_2 generation.
- 2) Explain the structure and function of a nephron with the help of a diagram.