



# 17103

16117

2 Hours / 50 Marks

Seat No.

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- Instructions :* (1) All questions are **compulsory**.  
(2) Illustrate your answers with neat sketches **wherever** necessary.  
(3) Figures to the **right** indicate **full** marks.  
(4) Assume suitable data, if **necessary**.

Marks

1. Attempt **any nine** of the following :

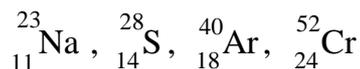
18

- Draw shapes of s and p orbitals.
- If atomic number and atomic mass number of an element are 11 and 23 respectively, write number of protons, neutrons and electrons in it.
- Give two postulates of Bohr's Theory.
- List the factors affecting on degree of Ionization.
- Establish the relation between chemical equivalence and electrochemical equivalence.
- State Faraday's second law of electrolysis.
- Calculate pH of 0.1 molar sulphuric acid. Assume complete dissociation.
- Give two uses of Duralumin.
- Differentiate between mineral and ore.
- Give the principle of Gravity Separation Method.
- Name the organic compound present in natural rubber. Give its structure.
- Why the use of thermal Insulator is very important in various industries ?

2. Attempt **any four** of the following :

16

- Write electronic configuration of following element.



- Explain formation of  $\text{N}_2$  molecule.

c) Define :

- Isotopes
- Isobars
- Orbit
- Orbitals

P.T.O.



- d) Why blue colour of copper sulphate solution turns to colourless after its electrolysis using platinum electrodes ?
- e) Calculate pH of  $2.5 \times 10^{-3}$  N KOH/NaOH solution assuming complete ionization.
- f) Define oxidation potential and reduction potential.

3. Attempt **any four** of following :

16

- a) Explain the process of calcination with labelled diagram.
  - b) Give composition, properties and uses of Wood's metal.
  - c) Define Refining. Explain poling (oxidation) method.
  - d) Give characteristics of insulating material.
  - e) Describe the vulcanization of rubber.
  - f) Differentiate between addition polymerization and condensation polymerization.
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