



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
a) Draw shapes of s and p orbitals.	
b) If atomic number and atomic mass number of an element are 11 and 23 respectively, write number of protons, neutrons and electrons in it.	
c) Give two postulates of Bohr's Theory.	
d) List the factors affecting on degree of Ionization.	
e) Establish the relation between chemical equivalence and electrochemical equivalence.	
f) State Faraday's second law of electrolysis.	
g) Calculate pH of 0.1 molar sulphuric acid. Assume complete dissociation.	
h) Give two uses of Duralumin.	
i) Differentiate between mineral and ore.	
j) Give the principle of Gravity Separation Method.	
k) Name the organic compound present in natural rubber. Give its structure.	
l) Why the use of thermal Insulator is very important in various industries ?	
2. Attempt any four of the following :	16
a) Write electronic configuration of following element.	
$^{23}_{11}\text{Na}$ , $^{28}_{14}\text{S}$ , $^{40}_{18}\text{Ar}$ , $^{52}_{24}\text{Cr}$	
b) Explain formation of $\text{N}_2$ molecule.	
c) Define :	
i) Isotopes	ii) Isobars
iii) Orbit	iv) Orbitals

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**Marks**

- 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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