

# 17913

**13141**

**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.  
(5) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

**Marks**

- 1. Attempt any NINE of the following:** **18**
- a) State Aufbau principle.
  - b) Distinguish between Atomic Number and Atomic Mass Number.
  - c) Define electrovalency and covalency.
  - d) Calculate pH value of solution having hydrogen ion concentration  $5.5 \times 10^{-5}$  gm ions per liter.
  - e) Define electrolytic cell and anode.
  - f) State Faraday's first law of electrolysis.
  - g) Differentiate between strong and weak electrolyte.
  - h) Define ore and gangue.
  - i) Explain why : All minerals are not ore but all ores are minerals.

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- j) Define Alloy. Write it's types.
- k) Write two drawbacks of natural rubber.
- l) Write applications of glass wool based on it's properties.

**2. Attempt any FOUR of the following : 16**

- a) Write orbital electronic configuration of  
 $_{11}\text{Na}^{23}$ ,  $_{24}\text{Cr}^{52}$ ,  $_{19}\text{K}^{39}$ ,  $_{6}\text{C}^{12}$
- b) Write four assumption of Bohr's atomic theory.
- c) Describe formation of MgO molecule with the help of figure.
- d) Write assumptions of Arrhenius theory of electrolytic dissociation.
- e) Describe electrolysis of  $\text{CuSO}_4$  solution using copper electrodes.
- f) A current of 1.5 ampere was passed through a solution of a salt of metal for 15 minute when 0.783gm of metal was deposited. Calculate equivalent weight of metal.

**3. Attempt any FOUR of the following : 16**

- a) Describe gravity separation method.
  - b) Define :  
Ductility, Tensile strength, Soldering, Machinability.
  - c) Write composition, properties and applications of babbitt metal.
  - d) Differentiate between thermosoftening and thermosetting plastics.
  - e) Explain addition polymerisation with one example.
  - f) Define thermal insulator. Write it's three characteristics.
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