

17103

16172

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 :

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- (a) State the number of sub-shells in K, L, M, N shells.
- (b) Why atom is electrically neutral ?
- (c) Define valency. Write their types.
- (d) Define ionisation and electrolysis.
- (e) Define cathode and anode.
- (f) State Faradays first law of electrolysis.
- (g) A current of 4 amperes is passed – through CuSO_4 solution for one hour.
Calculate the weight of copper deposited at cathode.
(E.C.E. of Cu = 0.000326 gm/coul.)
- (h) Define the terms :
 - (i) Tensile strength
 - (ii) Hardness

- (i) Define alloy, write it's types.
- (j) Write two purpose of making alloy.
- (k) Name any four synthetic rubber.
- (l) Give the classification of thermal Insulating materials with one example each.

2. Attempt any FOUR of the following :

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- (a) Write four assumptions of Bohr's atomic theory.
- (b) Explain the formation of CaCl_2 molecule.
- (c) Write electronic configuration
 ${}_{19}\text{K}^{39}$, ${}_{24}\text{Cr}^{52}$, ${}_{20}\text{Ca}^{40}$, ${}_{6}\text{C}^{12}$
- (d) Describe electrolysis of CuSO_4 solution using copper electrodes.
- (e) Define degree of ionisation. Explain the factors affecting degree of ionisation.
- (f) Define pH and pOH. Calculate the pH of a solution which contains 1.54×10^{-2} mole/lit. of strong acid.

3. Attempt any FOUR of the following :

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- (a) Difference between Calcination and Roasting.
 - (b) Describe the method used for concentration of sulphide ore.
 - (c) Give the composition, properties and application of Babbit metal.
 - (d) Difference between thermosetting and thermosofting.
 - (e) Describe the vulcanisation of rubber.
 - (f) Write the preparation, properties and applications of glasswool.
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