17211

13141

2 Hours / 50 Marks Seat No. | | | | | | | | |

Instructions – (1) All Questions are *Compulsory.*

(2) Answer each next main Question on a new page.

(3) Illustrate your answers with neat sketches wherever necessary.

(4) Figures to the right indicate full marks.

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

Marks

1. Attempt any <u>NINE</u> of the following: **18**

a) Define metallurgy and electrolytic refining.

b) Write chemical reaction of formation of slag during smelting of copper ore.

c) What is the action of dilute H_2SO_4 and concentrated H_2SO_4 on aluminium?

d) State the factors affecting immersed corrosion.

e) Define metal cladding.

f) Write two constituents of paint, with two functions of each.

g) Which process is used for protection of small iron articles? Why?

Marks

h) State Ohm's law. Write its mathematical relation and meanings of terms involved in it.

i) Write applications of Ni-cd cell.

j) State two properties of electrically conducting polymers.

k) Give applications of liquid crystal polymers.

l) What are the advantages of adhesives?

2. Attempt any <u>FOUR</u> of the following: **16**

a) Draw labelled diagram of Bessemer converter for copper. Write chemical reactions taking place in it.

b) Explain the refining process of aluminium by electrolysis.

c) Write composition and application of rose metal and tinmann's solder.

d) Give two applications of teflon and silicon fluids.

e) Describe construction of dry cell with labelled diagram.

f) Write reactions taking place during charging and discharging of lead acid storage cell.

3. Attempt any <u>FOUR</u> of the following: **16**

a) Describe mechanism of electrochemical corrosion with evolution of hydrogen gas.

b) Discuss the role of oxide films formed during corrosion.

c) Distinguish between galvanising and tinning.

d) Describe construction and working of "Zn | $ZnSO_4$ || $CuSO_4$ | CU" cell with labelled diagram.

e) Explain working of hydrogen-oxygen fuel cell with labelled diagram.

f) What is specific conductance and equivalent conductance? State relation between them. State the unit of specific conductance and equivalent conductance.

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