

17208

14115

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) Name the type of metal oxide film formed due to corrosion by Al metal.
 - b) Write two uses of slag.
 - c) Explain why steel is tempered after quenching.
 - d) Explain the function of gypsum in portland cement.
 - e) Name two ores of iron with chemical formula.
 - f) List two causes of formation of boiler scales.
 - g) Name two constituents of paint and one function of each.
 - h) Explain why we have to take more care during slaking of quick lime.
 - i) Explain metal cladding. Give its limitations.
 - j) Explain why chloramine is used for stabilisation of water in Army.
 - k) Distinguish between galvanising and sheradising.
 - l) Name two properties and two applications of high carbon steel.

P.T.O.

- 2. Attempt any FOUR of the following:** **16**
- a) Write chemical reactions in the zone of reduction for extraction of iron in blast furnace.
 - b) Write mechanism of electro chemical corrosion by absorption of O₂ gas.
 - c) Explain reverse osmosis method with labelled diagram for desalination of sea water.
 - d) Write the chemical composition of portland cement.
 - e) List two disadvantages of using hard water in paper and textile industry.
 - f) Define heat treatment. Give four purposes of heat treatment.
- 3. Attempt any FOUR of the following:** **16**
- a) Explain atmospheric corrosion? Describe two factors affecting rate of it.
 - b) Write chemical reactions taking place during in setting and hardening of cement.
 - c) Describe ion exchange process of softening with neat labelled diagram and chemical reactions.
 - d) Explain why tinned containers preferred over galvanised containers for storing food stuffs.
 - e) Describe details about the electrochemical protection by sacrificial anodic method with the help of diagram. Write its applications.
 - f) On analysis of a sample of water it is found that 100 ml water sample requires 20 ml of 0.01 m EDTA solution using butter and EBT indicator. Calculate hardness of water sample in ppm.
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