

17208

**11920**

**2 Hours / 50 Marks**

Seat No.

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- 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.

	<b>Marks</b>
<b>1. Attempt any NINE of the following :</b>	<b>18</b>
(a) Define heat treatment of steel.	2
(b) Write the products of Blast Furnace.	2
(c) Write two applications of wrought iron.	2
(d) Why galvanised containers are not used for storing food stuffs ?	2
(e) Write two applications of metal spraying.	2
(f) Name the types of metal oxide films formed due to corrosion.	2
(g) List any four constituents of paint.	2
(h) Name four types of impurities present in natural water.	2
(i) How can the exhausted permutit or zeolite be regenerated ?	2
(j) Write four characteristics of potable water.	2
(k) What is slaking of lime ?	2
(l) Write two properties of plaster of paris.	2

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P.T.O.

2. Attempt any FOUR of the following : 16
- (a) Write the chemical reaction in the zone of heat absorption for the extraction of iron in blast furnace. 4
  - (b) Write composition, two properties and two applications of low carbon steels. 4
  - (c) Differentiate between annealing and normalising. 4
  - (d) Write mechanism of electrochemical corrosion by absorption of oxygen gas. 4
  - (e) Explain the sacrificial anodic protection with suitable example. 4
  - (f) Explain sherardizing process with suitable diagram. 4
3. Attempt any FOUR of the following : 16
- (a) Write two disadvantages each of using hard water in dyeing industry and sugar industry. 4
  - (b) Differentiate between scale & sludge. 4
  - (c) Describe permutit process of water softening with neat labelled diagram and chemical reaction. 4
  - (d) Explain the sterilization of water by using chlorine gas and bleaching powder. 4
  - (e) What is carbonate and non-carbonate hardness of a sample of water in ppm containing  $\text{Ca}(\text{HCO}_3)_2 = 16.2 \text{ mg/lit}$ ,  $\text{Mg}(\text{HCO}_3)_2 = 7.3 \text{ mg/lit}$ ,  $\text{MgCl}_2 = 9.5 \text{ mg/lit}$  and  $\text{CaSO}_4 = 13.6 \text{ mg/lit}$ . 4
  - (f) Describe setting and hardening of cement. Write chemical reaction taking place in same. 4
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