



17203

11718

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) Assume suitable data, if **necessary**.
 - (6) 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 any two iron ores with formulae.
- b) Write two functions of coke in blast furnace.
- c) Define heat treatment of steel.
- d) State any two effects of alloying element Ni on steel.
- e) State types of oxide films in atmospheric corrosion. Which oxide film is most corrosive ?
- f) State any two factors affecting electrochemical corrosion.
- g) Write any four characteristics of good paint.
- h) Name and define the process used for protection of small iron articles from corrosion.
- i) Define calorific value, ignition temperature.
- j) How percentage of moisture determined from solid fuel ?
- k) Write any two applications of biodiesel.
- l) Write any two functions of good lubricant.

2. Attempt **any four** of the following :

16

- a) Write chemical reactions taking place in absorption zone of blast furnace.
- b) How plain carbon steels are classified ? Write properties and applications of any one plain carbon steel.
- c) Name and explain the heat treatment method which is used to increase cutting ability of steel.

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- d) Define fuel. List any three characteristics of good fuel.
- e) Draw a neat labelled diagram for refining of crude petroleum. Write composition and applications of any two petroleum fractions.
- f) Write composition, properties and applications of CNG.

3. Attempt **any four** of the following :

16

- a) Explain hydrogen evolution mechanism of electrochemical corrosion.
 - b) Distinguish between Galvanising and tinning.
 - c) Explain metal spraying method used for protection of metal from corrosion.
 - d) Define :
 - i) Cloud point
 - ii) Pour point
 - iii) Acid value
 - iv) Viscosity index.
 - e) Explain mechanism of fluid film lubrication with diagram.
 - f) Write operating conditions and name the lubricant for following :
 - i) IC engine
 - ii) Cutting tools
 - iii) Sewing machine
 - iv) Gears.
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