17203

11819

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

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** : **18**

a) Name two important ores of iron ? Mention its formula.
b) State any two functions of Blast furnace.
c) Define heat treatment. Give any two purposes of heat treatment.
d) What is the effect of alloying element Cr and V on the properties of steel ?
e) Define corrosion. Mention its types.
f) Name any four factors affecting electrochemical corrosion.
g) Define cementation. Name its types.
h) List any four constituents of paint.
i) Define calorific value and ignition temperature.
j) Give two applications of biodiesel.
k) Distinguish between solid fuel and liquid fuel (any two).
l) Define cloud point and viscosity index of a lubricant.

2. Attempt **any four** : **16**

a) Write the chemical reactions taking place in the zone of reduction of blast furnace.
b) Give the classification of plain carbon steel. Write composition, one property and one use of different plain carbon steel.
c) Distinguish between hardening and normalizing.
d) Define fuel. Give the classification of fuel based on their occurrence, with two examples of each type.
e) Explain the significance of proximate analysis.
f) Write composition, 2 properties and two uses of CNG.

Marks

3. Attempt **any four** : **16**

a) Explain the mechanism of oxidation corrosion.

b) Name and describe the method used for coating large and irregularly shaped articles, for prevention of corrosion.

c) Describe sacrificial anodic protection with neat diagram.

d) Define lubricant. Give the classification of lubricants with atleast one example of each type.

e) Explain boundary lubrication with diagram.

f) Suggest the type of lubricant used for the following jobs.

i) Clock

ii) I.C. Engines

iii) Gears

iv) Sewing machines.