



C-09-M-404

3504

BOARD DIPLOMA EXAMINATION, (C-09)

MARCH / APRIL - 2019

**DME - FOURTH SEMESTER EXAMINATION
ENGINEERING MATERIALS**

Time : 3 Hours]

[Total Marks : 80

PART - A

3×10=30

- Instructions :**
- (1) Answer **ALL** questions.
 - (2) Each question carries **THREE** marks.
 - (3) Answer should be brief and straight to the point.

- 1 State the principle of Radiography test.
- 2 What is the effect of grain size on mechanical properties?
- 3 State the advantages of making steel in L-D process.
- 4 What is Critical temperature? Write the Critical Temperature in Cooling of Molten Iron.
- 5 State the properties of following structures :
 - (a) Cementite
 - (b) Austenite
- 6 Distinguish between Hardness and Hardenability of Steel.
- 7 Name the various methods of Heat treatment of steel.
- 8 State the position, properties and uses of Babbit Metal.
- 9 State the influence of Silicon and Manganese on Plain carbon steels.
- 10 What is meant by Slip Casting.

PART - B**10×5=50**

- Instructions :**
- (1) Answer any **FIVE** questions.
 - (2) Each question carries **TEN** marks.
 - (3) Answer should be comprehensive and the criterion for valuation is the content but not the length of the answer.

- 11 Draw a neat sketch of Universal testing machine and explain the procedure for conducting Tensile test.
- 12 (a) Determine the effective number of atoms in the following structure with a sketch :
 - (i) Face-centered cubic
 - (ii) Body-centered cubic
- (b) Distinguish between Crystalline and Amorphous solids.
- 13 Draw a neat sketch of Puddling furnace and explain how Wrought iron is produced from it?
- 14 (a) Explain Cooling curve of pure iron.
- (b) Discuss the significance of Equilibrium diagram in study of alloy systems.
- 15 (a) Describe the process of Nitriding in detail.
- (b) Write the advantages and disadvantages of Gas Carburising over Solid Carburising.
- 16 (a) State the influence of Silicon, Sulphur, Manganese, Nickel and Phosphorus on the properties of cast iron.
- (b) State any five differences between Gray cast iron and white cast iron.

17 Explain briefly various methods of Producing Metal Powders.

18 (A) Write a short note on :

(a) Impact strength

(b) Hardness.

(B) State the composition, properties and uses of :

(a) Admiral brass

(b) Gun metal
