

6446
BOARD DIPLOMA EXAMINATION
MARCH/APRIL - 2019
DIPLOMA IN MECHANICAL ENGINEERING
ENGINEERING MATERIALS
FOURTH SEMESTER EXAMINATION

Time: 3 Hours

Total Marks: 80

PART - A (3m x 10 = 30m)

Note 1: Answer all questions and each question carries 3 marks

2: Answers should be brief and straight to the point and shall not exceed 5 simple sentences

1. Distinguish Brinell and Rockwell hardness tests with respect to load, indenter and applications?
2. Distinguish between Anisotropy and Isotropy?
3. Distinguish between Bessemer process and open hearth process
4. Write the eutectic reaction in Iron carbon equilibrium diagram
5. Define alloy and allotropy
6. Distinguish between hardening and tempering?
7. State various engineering applications of nitriding?
8. Why alloy steels are essential for industrial applications?
9. State the properties and uses of nickel
10. Define
 - a) Flowability
 - b) Green strength

PART - B (10m x 5 = 50m)

** Note 1: Answer any five questions and each carries 10 marks*

2: The answers should be comprehensive and the criteria for valuation is the content but not the length of the answer

11. Explain the geometry of Specimens for Charpy and Izod test with a line sketch?
12. Explain the phenomenon of dendritic crystallization? Describe the Solidification of a pure metal?
13. Draw a line sketch of Puddling furnace and explain its working
14. Calculate the percentage of phases in hypo eutectoid, eutectoid and hyper eutectoid steels

15. a) Explain i) Full annealing ii) Process annealing
b) Distinguish between annealing and normalising?
16. Discuss the influence of silicon, sulphur, manganese, nickel and phosphorous on the properties of cast iron.
- 17A. Write the application of the following engineering materials?
a) Steel b) Cast iron
- B. Write down the composition, properties and applications of high speed steel
18. Explain the isostatic moulding and extruding process

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