

ONE TIME EXIT SCHEME

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10MR762

Seventh Semester B.E. Degree Examination, April 2018 Advanced Material Science & Surface Coating

Time: 3 hrs.

Max. Marks:100

Note: Answer any FIVE full questions, selecting at least TWO questions from each part.

PART – A

- 1 a. Explain micro and macro examination of a material? Detailed note on equipments used. (10 Marks)
b. Explain different stages of Creep with neat diagram. (10 Marks)
- 2 a. Explain metals and alloys used in turbine blades and impeller with its properties and mechanical behavior. (10 Marks)
b. Explain the procedure and applications of Amorphous metallic coating and metal metalloid coating. (10 Marks)
- 3 a. Explain heat treatment process. (10 Marks)
b. Explain TTT curves with neat diagram, with all technologies. (10 Marks)
- 4 a. Write the differences between annealing and normalizing. (05 Marks)
b. Write the differences between soldering and braging. (05 Marks)
c. Explain welding stainless steel with neat diagram. (10 Marks)

PART – B

- 5 a. Explain NDT methods to detect cracks. (10 Marks)
b. Briefly explain cathodic protection. (10 Marks)
- 6 a. Explain thermo mechanical treatments and its effect on the materials used in marine applications. (10 Marks)
b. Explain Anodic protection with examples and metals which can be used for this process. (10 Marks)
- 7 a. Explain the Hardness testing with respect to ductile and brittle materials. (10 Marks)
b. With neat diagram, explain fractures toughness and role of residual ductility in corrosion fatigue. (10 Marks)
- 8 Explain (i) PVD (ii) Ion plating (iii) Galvanising (iv) Plasma spray coating. (20 Marks)

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