

Code No: 157FA

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JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B. Tech IV Year I Semester Examinations, February/March - 2022

SURFACE ENGINEERING

(Common to ME, MCT)

Time: 3 Hours

Max. Marks: 75

Answer any five questions
All questions carry equal marks

- 1.a) Explain geometrical surface properties in detail and write modification strategy.
b) Discuss the following
i) Adhesion ii) Conduction iii) Hardness iv) Bio-compatibility. [7+8]
- 2.a) Mention mechanical properties of the surface and explain the surface modification criteria.
b) Explain chemical properties of the surface in detail and write their modification strategies. [7+8]
- 3.a) What is hard facing? Discuss the benefits associated with it.
b) Explain hot deposition and hot dipping in detail. [8+7]
- 4.a) Compare/differentiate between PVD and CVD processes.
b) What is electro deposition and electro less deposition? Explain in detail. [7+8]
- 5.a) What is boronising? Discuss its advantages and limitations.
b) Explain nitriding process in detail and discuss the advantages and limitations. [7+8]
- 6.a) What is carbonitriding? Discuss its merits and demerits.
b) What is nitro carburizing? Explain the process with suitable diagram. [7+8]
- 7.a) What is tempering? What is its influence on properties? Explain.
b) What is laser hardening? What are its advantages and limitations? [7+8]
- 8.a) With an example explain surface engineering solution to a specific problem.
b) What are the design guidelines for surface preparation? Explain them. [8+7]

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