

Code No: 156EB**JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD****B. Tech III Year II Semester Examinations, February/March - 2022****TESTING OF MATERIALS****(Civil Engineering)****Time: 3 hours****Max. Marks: 75****Answer any five questions****All questions carry equal marks**

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- 1.a) What do you mean by hardness? Explain the importance and testing of Hardness of a material.
- b) Define COD? Explain the significance of transition temperature curve. [8+7]
- 2.a) What are Tensile properties? Explain conditions for necking.
- b) Explain the stress strain diagram of steel and cast iron with a neat figure. [7+8]
- 3.a) What is Fatigue test? Explain the mechanism of fatigue failure.
- b) Explain briefly the effect of stress concentration, surface condition on fatigue. [7+8]
- 4.a) Define Creep? Explain the mechanism of Creep deformation with a neat diagram.
- b) What are theories of Creep? Discuss the fracture at elevated temperature. [8+7]
- 5.a) What do you mean by NDT? Explain the principle and operation and limitations of Liquid penetrant.
- b) What are Ultrasonic tests? Discuss in detail. [8+7]
- 6.a) What do you mean by Notched bar impact test? Explain briefly its significance.
- b) Explain in detail the methods of hardness testing. [7+8]
- 7.a) Explain the major differences between Engineering stress-strain and True stress-strain.
- b) What are stress cycles? Explain the salient points in S-N curve. [8+7]
- 8.a) Will the environment play any effect on Fatigue? If so, explain in detail.
- b) What do you mean by Radiography? Explain the principle of operation. [7+8]

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