

22241

M.Tech. 3rd Semester Mechanical Engg.

(Machine Design) Examination,

December-2017

MECHANICAL BEHAVIOUR OF MATERIALS

Paper-M-821-A

Time allowed : 3 hours]

[Maximum marks : 100

Note : Attempt any five questions. All questions carry equal marks.

1. Express the stress-strain curves at maximum load. Also explain stress fields and energies of dislocations. 20
2. What is deformation by slip ? Explain slip in a perfect lattice. 20
3. Explain the following : 20
 - (i) Fatigue curve
 - (ii) Fatigue testing
 - (iii) Yield Point Phenomenon
 - (iv) Stress Concentration
4. (i) Explain the factors affecting the Fatigue strength of materials. 10
(ii) Explain the effect of Metallurgical impurities on fatigue. 10

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5. (i) What is Creep ? Explain the creep curve in detail with neat diagram. 10
- (ii) Explain fracture by creep at elevated temperatures. 10
6. What is an impact ? Briefly explain two impact test and also show their result. 20
7. Explain the following : 20
- (i) Strain ageing.
- (ii) Coaxing and Overstressing.
- (iii) Tempere & Hydrogen embrittlement
8. Write short note on : 20
- (i) Flow and Fracture under rapid loading. 10
- (ii) Behaviour of Metals under tension. 10

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