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

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