Roll No. .....

22241

M. Tech. 3rd Semester Mechanical Engg.

(Machine Design)

Examination – January, 2016

MECHANICAL BEHAVIOUR OF MATERIALS

Paper : M-821-A

Time : Three Hours] *[Maximum Marks : 100*

Before answering the questions, candidates should ensure that they have been supplied the correct and complete question paper. No complaint in this regard, will be entertained after examination.

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

1. What is deformation in a perfect lattice and dislocation in crystal ? Explain. 20

2. Explain stress fields and energies of dislocations. 20

3. Discuss the effect of gauge length on strength and elongation of material. 20

4. What is Stress cycle and fatigue curve ? Explain the use of same in the selection of material. 20

5. (a) Show creep strain and creep time curves with detailed discussion. 10

(b) Explain fracture by creep at elevated temperatures. 10

6. Discuss the concept of Temper and hydrogen embrittlement with suitable example. 20

7. Explain the low temperature and high temperature creep theories. 20

8. Write short notes on : 20

(a) Effect of metallurgical impurities,

(b) Yield point phenomenon,

(c) Dislocation climb and jog.
