

2056
B.E. (Mechanical Engineering)
Sixth Semester
MEC-605: Mechanical Behaviour of Materials

Time allowed: 3 Hours

Max. Marks: 50

NOTE: Attempt five questions in all, including Question No. 1 which is compulsory and selecting two questions from each Section.

x-x-x

1	(a) What is the function of alloying elements in tool steels? (b) What is creep phenomenon? (c) What is tempered martensite? (d) What is viscoelastic deformation? (e) Define corrosion rate.	10
	<u>Section - A</u>	
2	(a) Explain the concept of Elastic deformation. (b) Write a short note on (i) True stress and strain (ii) Resilience	(5) (5)
3	(a) Briefly cite the difference between recovery and recrystallization processes. (b) Explain the characteristics of dislocations.	(5) (5)
4	(a) What are the main types of fractures observed in materials? Explain with examples. (b) Explain the principles of fracture Mechanics.	(5) (5)
	<u>Section - B</u>	
5	Explain Iron-carbon diagram with neat sketch. Discuss the development of 0.4% carbon steel microstructure from liquid phase.	(10)
6.	(a) Name the two stages involved in the formation of particles of a new phase. Briefly describe each. (b) Explain the effect of adding following elements to steel (i) Ni (ii) Cr (ii) W (iv) Mo	(5) (5)
7	(a) Explain deformation of Elastomers. (b) Briefly describe the phenomenon of passivity. Name two common types of alloy that passivate.	(5) (5)

x-x-x