

Code: 17MEMD2T5A

**I M.Tech - II Semester – Regular/Supplementary Examinations  
OCTOBER - 2020**

**FRACTURE MECHANICS  
(MACHINE DESIGN)**

Duration: 3 hours

Max. Marks: 60

Answer the following questions.

1. Illustrate the important modes of fracture failure. 15 M  
(OR)
2. Differentiate the behavior of brittle fracture and ductile fracture. 15 M
3. Describe how would you determine the stress intensity factor for a crack. 15 M  
(OR)
4. Explain different modes of crack openings with neat sketches. 15 M
5. Discuss J-integral approach in fracture mechanics. 15 M  
(OR)
6. Explain R-curve analysis testing procedures. 15 M

7. a) Briefly explain the importance of fatigue in engineering materials. 7 M
- b) Discuss the significance of low cycle fatigue. 8 M
- (OR)
8. a) Briefly explain stage I, II and III crack growth. 7 M
- b) Explain high cycle-low strain fatigue. 8 M