



UJ – 085

VIII Semester B.E. (Mech. Engg.) Degree Examination, June/July 2017
(Semester Scheme) (2K11)
ME 805-C : FAILURE ANALYSIS AND DESIGN (Elective)

Time : 3 Hours

Max. Marks : 100

Instruction : Answer **five full** questions selecting at least **one** question from Unit – I and **three** questions from Unit – II.

UNIT – I

1. a) Define failure mode, and explain different modes of mechanical failure. **10**
b) Discuss the functions of failure and performance standards. **10**
2. a) Explain the common causes of failure in a system. **10**
b) Discuss the different ways of failure consequences. **10**
3. Explain the following :
 - a) Ductile and brittle fracture
 - b) Wear failures
 - c) High temperature failures
 - d) Corrosion failures. **20**

UNIT – II

4. a) Explain classical and non-classical creep behaviour in failure analysis. **10**
b) Discuss the different types of failure in shafts. **10**
5. a) Briefly explain common types of bearing damages. **10**
b) Explain different ways of gear failures. **10**
6. a) Explain the concept of failure analysis and prevention. **10**
b) Explain the objective of failure analysis. **10**

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7. a) Explain the application of SEM in fractography. **10**

b) Discuss briefly, failure analysis methodology. **10**

8. Write a short notes on **any four** :

a) Stress corrosion cracking

b) Root cause analysis

c) Stress rupture

d) Crack initiation and propagation

e) NDT methods

f) FEMA.

(4×5=20)
