Roll No. | | | | | | | | | | | | | Total No. of Pages : 02

Total No. of Questions : 08

M.Tech (ME) (2017 Batch) (Sem.–2)

TRIBOLOGY

Subject Code : MTME-202

M.Code : 74978

Time : 3 Hrs. Max. Marks : 100

INSTRUCTIONS TO CANDIDATES :

1. **Attempt any FIVE questions in all, out of EIGHT questions.**
2. **Each question carries TWENTY marks.**

1. a) Discuss the laws of rolling friction. Suggest some laws of sliding friction analogous to those of rolling friction.

   b) Explain in detail the ways to prevent and control wear and friction in machines.

2. a) Explain and differentiate between 2-body and 3-body abrasion during lapping.

   b) Discuss various wear measuring machines.

3. Write the Reynolds equation for squeeze film hydrodynamic and discussed pressure distribution load capacity and squeeze time with respect to two parallel plates squeezed together.

4. Discuss in detail various types of lubrication used and their mechanism.

5. a) What is Sommar-field Number? How it helps the designer to control the design of journal bearing? Discuss benefits of clearance in journal bearing.

   b) Estimate the heat generated in the journal bearing due to viscosity of the lubricating oil.

6. a) Discuss different modes of failure in roller bearing, their causes and remedies.

   b) Discuss in detail the selection process of roller bearing.

7. What are the features of solid lubricants that make them superior to oil lubricants? Discuss in detail the mechanism of lubrication by Molybdenum Disulphide.

8. Write short notes on :

a) Properties of Lubricants

b) Limitation of hydrodynamic lubrications

c) Abrasive, erosive and adhesive wear.

d) Carbon-Based solid lubricants Other than Graphite

NOTE : Disclosure of identity by writing mobile number or making passing request on any page of Answer sheet will lead to UMC case against the Student.