

Roll No.

Total Pages : 03

BT-6/M-14

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TRIBOLOGY

ME-304-E

Time : Three Hours]

[Maximum Marks : 100

Note : Attempt *Five* questions in all, selecting at least *one* question from each Unit. All questions carry equal marks.

Unit I

1. Explain quantitative laws of sliding friction. Also explain adhesion theory of friction with suitable diagram.
2. Explain tribological systems and their characteristic features. Also explain different techniques of surface examination.

Unit II

3. (a) Explain Abrasive Wear. Why there is low and high stress in 2-body and 3-body abrasion with suitable diagram.

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- (b) Explain Rabinowicz's quantitative law of abrasive wear.

4. (a) What are wear resistance materials ? What are the main factors that influence wear ?
(b) Explain fretting, corrosion and surface fatigue wear.

Unit III

5. (a) Explain hydrostatic and hydrodynamic lubrication with neat sketch.
(b) What kind of additives is used in lubricating oil ? What will be the effect of lubrication in I.C. Engine ?
6. Explain rolling contact bearing. Give an account of classification of rolling contact bearings indicating their applications. What are the possible causes of bearing failure ?

Unit IV

7. Explain principle of operation of a hydrodynamic bearing using gas as a lubricant. Also state the pressure equation of a gas bearing.

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8. Write short notes on the following :

- (a) Bearing Materials
- (b) Porous bearings
- (c) Thrust bearings
- (d) Bearing characteristics number and bearing modulus.