

**327202**

May, 2019

**M.Tech. (MECHANICAL ENGG) - IInd SEMESTER  
TRIBOLOGY AND MAINTENANCE ENGG.  
(MME-202-A)**

Time : 3 Hours]

[Max. Marks : 75

*Instructions :*

1. It is compulsory to answer all the questions (1.5 marks each) of Part-A in short.
2. Answer any four questions from Part-B in detail.
3. Different sub-parts of a question are to be attempted adjacent to each other.

**PART-A**

1. (a) How is tribology useful in the conservation of energy? (1.5)  
(b) Classify various planned maintenance approach. (1.5)  
(c) List out some condition based monitoring techniques. (1.5)  
(d) Explain the term (i) Viscosity index(ii) Bearing modulus (iii) Friction. (1.5)  
(e) Define (i) Mean Time between Failures (ii) Mean Time to Repair. (1.5)

- (f) List the main factors of maintenance cost. (1.5)
- (g) What is meant by Breakdown maintenance approach? (1.5)
- (h) What is the effect of added additives to the lubricants? (1.5)
- (i) List the objectives of corrective maintenance. (1.5)
- (j) What is meant by ferrography? (1.5)

**PART-B**

- 2. (a) What is fluid film lubrication? What is difference between hydrostatic and hydrodynamic lubrication? (10)
- (b) Explain the major factors which affect the selection of lubricants. (5)
- 3. (a) Suggest steps for prevention of wear in bearing. (5)
- (b) Discuss Wear mechanism in detail. (10)
- 4. Explain with sketch various types of maintenance approach. (15)
- 5. Write short notes on :
  - (i) Spectroscopy.
  - (ii) Corrosion monitoring.
  - (iii) Quality circle in maintenance. (15)

- 6. (a) What is junction growth? Is it favorable or unfavorable? (5)
  - (b) What are similarities and difference between adhesive, abrasive and junction growth friction theories? (10)
  - 7. Explain the various levels of condition monitoring. (15)
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