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Roll No. ....

**CC84**

**M.Tech. EXAMINATION, May 2019**

(Third Semester)

(B. Scheme) (Re-appear)

(ME)

MED621B

TRIBOLOGY

*Time : 3 Hours]*

*[Maximum Marks : 75*

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Before answering the question-paper candidates should ensure that they have been supplied to correct and complete question-paper. No complaint, in this regard, will be entertained after the examination.

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

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**P.T.O.**

### Unit I

1. Discuss giving suitable examples how the tribology affects our lives to a much greater degree than is commonly realized. **8+7**
2. (a) What are the quantitative laws of wear ?  
Derive the wear equation.  
(b) Explain fretting, corrosion and surface fatigue wear with examples.  
(c) What are practical uses of wear phenomenon ? **5+5+5**

### Unit II

3. Derive the Reynolds' equation for lubrication problem clearly stating and explaining the assumptions made. **15**
4. (a) Explain hydrodynamic lubrication with the help of diagram.  
(b) What are the advantages and disadvantages of hydrodynamics journal bearings ? **10+5**

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### Unit III

5. (a) What is Hydrostatic Lubrication ?  
Describe the various types of Hydrostatic bearings with neat sketches.  
(b) Explain the function of restrictors used in hydrostatic journal bearings. **10+5**
6. (a) Discuss the governing equation for gas lubricating bearings.  
(b) Explain the advantages and disadvantages of the gas lubricated bearings. **10+5**

### Unit IV

7. (a) What are the different regims in elasto-hydrodynamic lubrication ?  
(b) Discuss the Grubin type solution of EHL along with its importance. **5+10**
8. Discuss the following : **5+5+5**
  - (a) Load capacity of ball bearings
  - (b) Lubrication of ball bearings
  - (c) Prediction of fatigur life of ball bearings.

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