

**B.Tech. – VIEP – MECHANICAL ENGINEERING
(BTMEVI)**

00541

**Term-End Examination
June, 2019**

BIMEE-006 : TRIBOLOGY

Time : 3 hours

Maximum Marks : 70

Note : Attempt any five questions. All questions carry equal marks.

1. (a) Define the term "Tribology" with the help of suitable examples. State its significance with respect to economical, scientific and multidisciplinary aspects. 7
- (b) Enumerate the importance of wear in engineering applications. Explain the quantitative laws of wear. 7
2. (a) Explain the method used for the measurement of surface roughness. 7
- (b) Explain how solid lubricants work. Give suitable examples. 7

3. (a) What do you understand by pitting, erosion and corrosion subjected to wear ? 7
- (b) Briefly explain the physico-mechanical properties of surface layer using suitable diagram. 7
4. (a) What are the additives for lubricating oil ? How are they classified ? Write their functions. 7
- (b) Explain elastic and plastic contact between metallic surfaces with suitable examples. 7
5. (a) What materials would you consider for the manufacturing of bearings ? What characteristics should those materials possess ? 7
- (b) What is clearance in respect to bearing ? What factors lead to wear of cylinder and piston rings ? 7
6. (a) Discuss the steps involved in bearing design. 7
- (b) Describe when and why roller bearings are preferred over ball bearings. 7

7. Write short notes on any *four* of the following :

$$4 \times 3 \frac{1}{2} = 14$$

- (a) Dry Friction
 - (b) Surface Peak
 - (c) Reynold Equation
 - (d) Surface Contaminants
 - (e) Erosion and Stress Corrosion
 - (f) Load and Utilization Factor
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