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BIMEE-006

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

Term-End Examination

June, 2016

00316

BIMEE-006 : TRIBOLOGY

Time : 3 hours *Maximum Marks : 70*

Note : *Attempt any **five** questions. All questions carry equal marks. Draw neat sketches wherever required.*

1. (a) What is Wear ? Explain the various wear mechanisms in brief.

(b) Differentiate between two-body abrasion and three-body abrasion with suitable examples. 7+7

2. (a) State and explain the laws of friction. How do you relate friction with wear ?

(b) What is boundary lubrication and elasto-hydrodynamic lubrication ? Explain. 7+7

3. (a) What is thick film lubrication ? Explain briefly.

(b) How is coefficient of friction related to viscosity ? What are the factors which influence the coefficient of friction ? 7+7

4. (a) Derive the Reynolds equation in two dimensions. State the important assumptions.

   (b) Enumerate various mechanical properties that enhance wear resistance of a material. 7+7

5. (a) What is the relation between the colour of a lubricating oil and its properties ?

   (b) Explain briefly the pressure feed and splash type of lubrication with the help of a schematic diagram. 7+7

6. (a) What do you understand by pitting, errosion and stress concentration ?

   (b) What are the salient features of a good bearing material ? Discuss any six properties in brief. 7+7

7. Write short notes on any ***four*** of the following : $4 \times 3\frac{1}{2} = 14$

   (a) Surface Engineering

   (b) Wear Measurement

   (c) Partial Bearing

   (d) Wear of Ceramic Materials

   (e) Limitations of Hydrodynamic Bearing