

Total No. of Questions : 6]

SEAT No. :

P94

[Total No. of Pages : 2

OCT/BE/Insem.-18

B.E. (Mechanical)

TRIBOLOGY

(2012 Pattern) (Elective - I)

Time : 1 Hour]

[Max. Marks : 30

Instructions to the candidates:

- 1) Write Q.1 or 2, Q.3 or Q.4, Q.5 or Q.6.
- 2) Figures to the right indicate full marks.
- 3) Assume suitable data wherever necessary.

- Q1)** a) Discuss different regimes of lubrication with the help of stribeck curve. [6]
b) What is the effect of temperature and pressure on viscosity of lubricating oil? [4]

OR

- Q2)** a) Explain in short the following terms used in lubrication. [6]
i) Absolute Viscosity
ii) Viscosity index
iii) Demulsibility
b) Explain how disposal of used oil is done. [4]

- Q3)** Explain deformation theory and derive the expression for the coefficient of friction due to deformation. [10]

OR

- Q4)** Explain. [10]
a) Stick-slip vibration phenomena.
b) Abrasive wear theory.

P.T.O.

Q5) A short hydrodynamic journal bearing refers the following data: **[10]**

Journal speed = 35 revolutions per seconds (rps)

Length of bearing (l) = $0.5 \times$ Journal diameter (d)

Radial clearance (c) = $0.001 \times$ Journal diameter (d)

Eccentricity ratio (e) = 0.65

Flow rate of Lubricant (Q_s) = 3.45 litre per hour

Radial Load (W) = 1000 N

Calculate:

- i) Journal Diameter
- ii) Radial clearance
- iii) Dimensions of the bearing
- iv) Minimum oil film Thickness
- v) Absolute viscosity of the lubricant.

OR

Q6) Derive petroff's equation for hydrodynamic journal bearing. State the conditions under which petroff's equation can be used. **[10]**

