

Total No. of Questions : 6]

SEAT No. : _____

P4954**BE/In Sem. - 18**

[Total No. of Pages : 2]

B.E. (Mechanical)**TRIBOLOGY****(Elective - I) (Semester - I) (402044 B) (2012 Course)***Time : 1 Hour**[Max. Marks : 30]**Instructions to the candidates:*

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

Q1) a) Define Lubricant. How lubricants are classified? Write at least four functions of lubricant. [6]

b) State the importance of recycling of used oil. How stepwise it takes place? [4]

OR

Q2) a) Explain the following properties of lubricant. [6]

- i) Viscosity
- ii) Effect of pressure on viscosity
- iii) Effect of temperature on viscosity
- iv) Oiliness
- v) Pour point
- vi) Demulsibility

b) What do you mean by additives? Write the use of EP additives and Emulsifier. [4]

Q3) Derive the expression for coefficient of friction due to adhesion " f_a " according to Modified Adhesion [Junction Growth] Theory. [10]

OR

P.T.O.

Q4) a) Define wear. Give the classification of wear including major and minor wear. [5]

b) Explain at least five factors affecting wear rate. [5]

Q5) Derive Petroff's equation for hydrodynamic journal bearing. State the conditions under which Petroff's equation can be used. Write its two limitations. [10]

OR

Q6) a) Write only two dimensional Reynolds equation and state the meaning of each term in equation. Write any four assumptions made for Reynolds equation. [6]

b) Explain with sketch, the mechanism of pressure development in hydrodynamic thrust bearing. [4]

