

Code: R7420303

**R7****B.Tech IV Year II Semester (R07) Advanced Supplementary Examinations June 2012****TRIBOLOGY****(Mechanical Engineering)**

Time: 3 hours

Max Marks: 80

Answer any FIVE questions

All questions carry equal marks

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- 1 (a) Define flash and fire points of an oil.  
(b) Explain with a neat sketch the working principle of a Saybolt viscometer.
- 2 Explain the essential features of a hydrostatic journal bearing by drawing line diagrams.
- 3 Explain the analysis of short or narrow bearing by deriving the two dimensional Reynolds equation.
- 4 Narrate the difference between hydrodynamic journal bearing and hydrostatic thrust bearing.
- 5 Explain the importance of molecular films, oiliness additives and the effect of temperature on surface films.
- 6 Explain Sommerfeld, Half-Sommerfeld and Reynolds boundary conditions in a hydrodynamic bearings.
- 7 Explain all the design considerations of practical pad bearings.
- 8 Explain the common bearing materials and their mechanical properties that are used in engineering components.

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