Menoufia University
Faculty of Engineering
Shebin El-Kom
Mechanical Power Eng. Department
Post Graduate: Diploma



Subject: Lubrication Engineering MPE528

Academic Year: 2017-2018

2nd Semester Time Allowed: 3 hr. Date: 19/5/2018

Question (1)

(50 Marks)

For specific shaft with diameter (R) rotates with angular speed (N) and carried by journal bearing with length and radial clearance (c), prove that friction coefficient depends on $\left(\frac{NR}{Pc}\right)$, (where P is the radial load per unit of projected bearing area). By using Petroff's hypothesis, show also how to calculate friction torque.

Question (2)

(50 Marks)

- [2.1] Defined Fluid bearing and what is the difference between hydrodynamic fluid and hydrostatic fluid.
- [2.2] What is the difference between hydrodynamic and hydrostatic bearings.
- [2.3] Explain hydrostatic and hydrodynamic bearing theory.
- [2.4] Describe the characteristics of the common plain bearing materials.
- [2.5] What are the types of hydrostatic and hydrodynamic bearing and their applications.
- [2.6] What are the advantages and disadvantages of hydrostatic and hydrodynamic bearings.

Good Luck

Prof.Dr. Safwat Willson

Dr. Mohammed Said Farag