

Reg No.: _____

Name: _____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY
FIFTH SEMESTER B.TECH DEGREE EXAMINATION, APRIL 2018

Course Code: ME369

Course Name: TRIBOLOGY

Max. Marks: 100

Duration: 3 Hours

PART A

Answer any three full questions, each carries 10 marks

Marks

- | | | |
|---|---|------|
| 1 | Define tribology and briefly explain its design and industry aspects. | (10) |
| 2 | a) List the assumptions in the Hertzian analysis of contact between surfaces. | (4) |
| | b) Explain the topography of engineering surface with a neat figure. | (6) |
| 3 | Explain the different types of friction and lubrication regimes in detail. | (10) |
| 4 | a) State Amonton's laws of friction. | (5) |
| | b) Briefly explain the causes of friction. | (5) |

PART B

Answer any three full questions, each carries 10 marks

- | | | |
|---|---|------|
| 5 | List the methods used for wear measurement and explain any four. | (10) |
| 6 | a) Define wear and explain any two types of wear. | (5) |
| | b) Mention any five factors affecting wear and explain them. | (5) |
| 7 | a) Define Newton's law of viscosity. Differentiate between dynamic and kinematic viscosity. | (5) |
| | b) Explain hydrodynamic and elastro-dynamic lubrication. | (5) |
| 8 | Explain the different properties of lubricants. | (10) |

PART C

Answer any four full questions, each carries 10 marks

- | | | |
|----|---|------|
| 9 | Sketch the two types of bearing constructions and explain them. | (10) |
| 10 | Differentiate between sliding and rolling contact bearings. | (10) |
| 11 | a) What is adhesion? What is the role of surface tension in adhesion? | (5) |
| | b) List any five bearing materials and write very short notes about them. | (5) |
| 12 | a) What is surface engineering? Define the scope of surface engineering. | (5) |
| | b) What is transformation hardening? | (5) |
| 13 | a) Describe any one electroplating processes? | (5) |
| | b) Briefly describe the various geometrical parameters of coatings. | (5) |
| 14 | Describe the process of selecting coating for any four conditions of wear or corrosion. | (10) |
