

Reg No.: _____

Name: _____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY
FIFTH SEMESTER B.TECH DEGREE EXAMINATION(R&S), DECEMBER 2019

Course Code: ME369

Course Name: TRIBOLOGY

Max. Marks: 100

Duration: 3 Hours

PART A

Answer any three full questions, each carries 10 marks.

Marks

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| 1 | a) Write short notes on Jost's Report. | (4) |
| | b) With the help of a neat sketch differentiate between real and apparent area of contact. | (4) |
| | c) What is meant by Elastic Half Space? | (2) |
| 2 | a) What are the classification of a Bearing? Explain each with examples. | (8) |
| | b) Compare Sliding and Rolling contact bearings. | (2) |
| 3 | a) What are the classifications of Friction? | (2) |
| | b) What are the exceptions to the Laws of Friction? | (3) |
| | c) Explain the modern Bowden-Tabor theory of Friction. | (5) |
| 4 | a) List out three situations where friction is desirable. | (3) |
| | b) With the help of a neat sketch explain Stick Slip Phenomenon. | (5) |
| | c) What are the methods to reduce Ploughing Component? | (2) |

PART B

Answer any three full questions, each carries 10 marks.

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| 5 | a) What are the classification of wear processes? Explain with example. | (5) |
| | b) Explain the mechanism of sliding wear. | (5) |
| 6 | a) Write short notes on wear of metals | (3) |
| | b) Explain the mechanism of abrasive wear | (5) |
| | c) Write any two methods to measure wear. | (2) |
| 7 | a) Write short notes on viscosity and viscosity index. | (5) |
| | b) Differentiate journal bearing and thrust bearings with the help of neat sketches. | (5) |
| 8 | a) Write short notes on lubricating oil additives with examples | (6) |
| | b) Explain Mixed and Hydrodynamic lubrication regimes with the help of stribeck curve | (4) |

PART C

Answer any four full questions, each carries 10 marks.

- 9 a) What is stiction? Explain with suitable examples. (3)
b) Write short notes on Surface Tension. (3)
c) What are the different types of bearing materials (4)
- 10 a) What do you mean by adhesive index. (3)
b) Differentiate between ball bearing and roller bearings? (5)
c) List out any four applications of rolling bearings? (2)
- 11 a) Explain the construction of roller bearings . (5)
b) What is the operation principle of hydrodynamic bearing. (5)
- 12 With the help of a neat sketch compare Physical Vapour Deposition and (10)
Chemical Vapour Deposition.
- 13 a) Explain transformation hardening. (6)
b) Explain the scope of surface engineering (4)
- 14 a) Explain any one of the corrosion Resistant Coatings? (2)
b) What is Flame Hardening? (4)
c) Explain surface melting. (4)
