

Reg No.: _____

Name: _____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

Fifth Semester B.Tech Degree Regular and Supplementary Examination December 2020

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 a short note on Jost's report. | (4) |
| | b) Differentiate between conforming and non-conforming contact. | (2) |
| | c) Explain the topography of engineering surface with neat sketch. | (4) |
| 2 | a) Write the advantages and disadvantages of cylindrical roller bearings. | (4) |
| | b) Write any three applications of sliding bearings. | (3) |
| | c) Explain are the historical developments of tribology. | (3) |
| 3 | a) List out two situations where wear is
i)Desirable ii)Undesirable | (4) |
| | b) State and explain the Bowden Tabor's theory of Friction. | (6) |
| 4 | a) Write short notes on
i)Friction of metals ii)Friction of ceramics | (5) |
| | b) State Amonton's laws of friction. | (5) |

PART B*Answer any three full questions, each carries 10 marks.*

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| 5 | a) Explain the mechanism behind adhesive wear. | (5) |
| | b) Derive an equation for abrasive wear model. | (5) |
| 6 | What are the different methods used for wear measurement. Explain any three. | (10) |
| 7 | a) Explain the role of lubricant in rolling and forging. | (6) |
| | b) What is Newtonian and non-Newtonian fluid? | (4) |
| 8 | a) Write any five additives for developing a good lubricant. Explain them in detail. | (5) |
| | b) Explain what is boundary lubrication. | (5) |

PART C

Answer any four full questions, each carries 10 marks.

- 9 a) What is adhesion and adhesive index? (4)
b) Write short notes on adhesive coefficient of friction? (2)
c) Explain adhesion produced by surface tension. (4)
- 10 a) Differentiate ball bearing and roller bearings. (4)
b) Write any four bearing materials used in industry. (4)
c) Write any two applications of roller bearings. (2)
- 11 Differentiate between sliding and rolling contact bearings. (10)
- 12 a) Describe Chemical Vapour Deposition with a neat sketch. (5)
b) Explain any three geometrical parameters of coating. (3)
c) What is transformation hardening? (2)
- 13 a) What is electro plating? (2)
b) Explain thermo chemical treatments. (5)
c) Write any three advantages and disadvantages of electro plating method. (3)
- 14 a) Explain Surface melting. (3)
b) Write any four characteristics of electro less plating. (4)
c) What are the different properties and parameters of coating? (3)
