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
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.

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)	Expalin 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 Chemical Vapour Deposition.	(10)
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)

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