Name: **Enrolment No:**	

UNIVERSITY OF PETROLEUM AND ENERGY STUDIES
End Semester Examination, May 2022

Course: Tribology **Semester:VI**
Program: B.Tech ADE **Time : 03 hrs.**
Course Code: MECH3013P **Max. Marks: 100**

Instructions:

SECTION A
(5Qx4M=20Marks)

S. No.		Marks	CO
Q 1	Explain the stick-slip phenomena.	**4**	**CO1**
Q 2	Elaborate effect of adding additives to the lubricants?	**4**	**CO1**
Q 3	Differentiate between absorption and adsorption?	**4**	**CO1**
Q 4	Draw Striback curve and show the different lubrication mechanism region.	**4**	**CO1**
Q 5	Differentiate between static and kinetic coefficients of friction and what is the practical significance of these two terms.	**4**	**CO1**
	SECTION B **(4Qx10M= 40 Marks)**		
Q6	Prove the junction growth occurs before the rupture of the asperity.	**10**	**CO2**
Q7	Discuss the boundary lubrication mechanism.	**10**	**CO1**
Q8	Differentiate two-body and three body abrasive wear. Derive the Rabinowitz equation of abrasive wear.	**10**	**CO2**
Q9	Explain the delamination theory of wear. OR Measured kinematic viscosities of the commercial (SM-120) oil at 40 °C and 100 °C are 125.07 mm^2/s and12.48 mm^2/s, respectively. Estimate the VI of the oil.	**10**	**CO3**
	SECTION-C **(2Qx20M=40 Marks)**		
Q 10	Deduce the generalized Reynolds equation of to estimate the fluid film lubrication pressure. **OR** Define elasto-hydrodynamic lubrication mechanism. Duduce the hertz	**20**	**CO4**

	equation of elastic contact.		
Q11	Enlist the surface improvement techniques to make the wear resistant surface. Describe the carbonitriding and carburizing of the surface treatment.	**20**	**CO3**