BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI
(MID SEMESTER EXAMINATION SP2023)

CLASS: BTECH **SEMESTER: VI**
BRANCH: MECHANICAL **SESSION: SP2023**

SUBJECT: ME367 INDUSTRIAL TRIBOLOGY

TIME: 02 Hours **FULL MARKS: 25**

INSTRUCTIONS:
1. The question paper contains 5 questions each of 5 marks and total 25 marks.
2. Attempt all questions.
3. The missing data, if any, may be assumed suitably.
***4*. Tables/Data handbook/Graph paper etc., if applicable, will be supplied to the candidates**

			CO	BL
Q.1(a)	Describe the Mean Peak Spacing roughness parameter.	[2]	01	02
Q.1(b)	Distinguish between a Physiosorbed Layer and Chemisorbed Layer.	[3]	01	04
Q.2(a)	Describe the significance of root mean square roughness with suitable illustration.	[2]	01	02
Q.2(b)	Explain waviness with a neat sketch.	[3]	01	02
Q.3(a)	Illustrate the measurement techniques employed for the static coefficient of friction as well as during continuous sliding.	[2]	02	02
Q.3(b)	Formulate the relation for coefficient of friction given by Bowden and Tabor's simple adhesion theory stating its limitations.	[3]	02	03
Q.4(a)	Explain stick-slip phenomenon and the related observations associated with stick-slip condition.	[2]	02	02
Q.4(b)	Formulate the relation for coefficient of friction for ploughing by a hard conical asperity on a soft surface.	[3]	02	03
Q.5(a)	Outline the variables that relate to metallurgy and service that affects wear of a component.	[2]	03	03
Q.5(b)	Identify the different elementary and special forms of wear. Further, state how eventually wear mechanisms change from one form to the other or occur simultaneously along with some related applications.	[3]	03	01

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