

BIRLA INSTITUTE OF TECHNOLOGY AND SCIENCE, PILANI

FIRST SEMESTER 2023-2024 DE G513 TRIBOLOGY

Mid-Semester Examination (Regular) (Closed Book + Open Book)

Date: 11.10.2023

Maximum Marks: 25 (Weightage 25%)

Time: 90 min.

PART –A (Closed Book)

Q1. Answer the followings.

[1*6=6]

(i) What tribological characteristics are desired for solid lubricants among minimum wear, maximum wear, minimum friction, maximum friction? Justify your answer.

(ii) What is viscosity index? Explain.

(iii) What do you mean by SAE 20W50? Specify all the terms with types.

(iv) Distinguish chemically reacted layer and chemisorbed layer with example.

(v) Give example of instrument for each surface roughness measurement (stylus) method by current generating, potential generating and carrier modulating.

(vi) What is the importance of eccentricity ratio in Journal bearings? For what values of eccentricity ratio friction force in journal bearing becomes Petroff friction.

Q2. Answer The following:

[2*4=8]

(i) Write a short note on Cone on plate viscometer. also mention its advantages over other viscometers.

(ii) Discuss pseudo-plastic behavior and thixotropic behavior of fluid shear.

(iii) What do you mean by moments and central moments of amplitude probability function. Represent mean, center line average, standard deviation, skewness and kurtosis the moments in terms of moments or central moments.

(iv) Write a short note on Parallel surface bearing.