

Even Semester Mid-term Examination, 2022-23

TRIBOLOGY**MES 624***Full Marks : 25**Time : 90 Minutes**The figures in the margin indicate full marks.**Graph paper shall be supplied, if required.**Answer all the questions briefly.*

- | Question No. | Body of the Question | Marks Mapped CO |
|--------------|--|-----------------|
| 1. | Explain physically probability density curve and Bearing ratio curve of Gaussian engineering surface. | 5 CO1 |
| 2. | According to Greenwood and Williamson model for multiple asperity elastic contact, derive the following expression for total load carried by all the asperities.
$W = NKR^{1/2} \int_d^{\infty} (z-d)^{3/2} \phi(z) dz$ | |
| | Where notation have their usual meaning. | 5 CO1 |
| 3. | According to Bowden and Tabor's simple adhesion theory, show that coefficient of friction, $\mu_{adh} = \frac{s}{H}$ and what are the drawbacks of the simple theory. | 5 CO1 |
| 4. | Show that volume of abrasive wear could be expressed by following equation. | 5 CO1 |

$$v = k \left(\frac{\tan \theta}{\pi} \right) \frac{Wx}{H}$$

(2)

- 5 Explain the mechanism of high value of coefficient of friction for smooth metallic surface contact in vacuum.

5 CO1

COURSE OUTCOMES

CO1: CO1: Knowledge of friction, wear and lubrication for industry applications
