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School of Engineering**B.TECH Mechanical Engineering****Mid Term Examination - May 2024****Duration : 90 Minutes****Max Marks : 50****Sem VI - G3UB606T - Design of transmission systems**General Instructions*Answer to the specific question asked**Draw neat, labelled diagrams wherever necessary**Approved data hand books are allowed subject to verification by the Invigilator*

- 1) Classify gears based on the shaft position. K2 (2)
- 2) List different type of clutches. K1 (3)
- 3) Compare between Clutch and Flange Coupling. K2 (4)
- 4) Explain the Law of gearing? K2 (6)
- 5) A multiple disk friction has three driver disks and two driven disks. If the number of driven disks are increased to three, then the torque transmission capacity would increase by K3 (6)
- 6) Write the assumptions made in deriving the Lewi's Equation. K3 (9)
- 7) Analyze the impact of varying tooth profile modifications on the performance of spur gears. K4 (8)
- 8) The following data is given for a pair of spur gears with 20° full-depth involute teeth: number of teeth on pinion = 24 number of teeth on gear = 56 speed of pinion = 1200 rpm module = 3 mm service factor = 1.5 face width = 30 mm Both gears are made of steel with an ultimate tensile strength of. 600 N/mm². Using the velocity factor to account for the dynamic load, calculate (i) beam strength; (ii) velocity factor; and (iii) rated power that the gears can transmit without bending failure, if the factor of safety is 1.5. K4 (12)

OR

- List down the factors which should be consider while desiging the friction clutch. K4 (12)