

- VII. (a) What are gear trains? Explain the different types of gear trains. (10)
(b) What do you mean by interference in involute gears? (5)
(c) Explain the terms addendum, dedendum, module and circular pitch. (5)

OR

- VIII. A pinion of 20° involute teeth rotating at 275 rpm meshes with a gear and provides a gear ratio of 1.8. The number of teeth on pinion is 20 and module is 8 mm. If the interference is just avoided, determine (i) the addenda on the wheel and pinion (ii) the path of contact (iii) the maximum velocity of sliding on both sides of pitch point. (20)

- IX. (a) What are the various types of brakes? Describe briefly. (15)
(b) What is meant by a self-locking and a self-energised brake? (5)

OR

- X. 2.5 kW of power is transmitted by an open belt drive. The linear velocity of the belt is 2.5 m/s. The angle of lap on the smaller pulley is 165° . The coefficient of friction is 0.3. Determine the effect on power transmission in the following cases: (20)
(i) Initial tension in the belt is increased by 8%;
(ii) Angle of lap is increased by 8% by the use of idler pulley, for same speed and tension on tight side
(iii) Coefficient of friction is increased by 8% by suitable dressing to friction surface of belt.
