VIT
Vellore Institute of Technology

Continuous Assessment Test – I

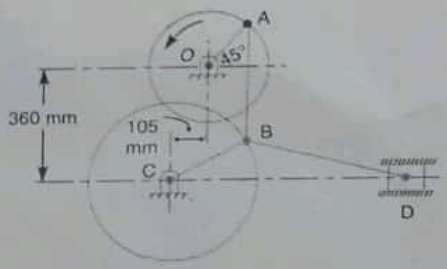
Programme Name & Branch: B.Tech Mechanical Engineering

Course Name & Code: MEE 2004 Mechanics of Machines

Class Number: 1363/1180/1536 Slot: A1 Exam Duration: 90 Minutes Maximum Marks: 50

Fall Semester 2019 - 20

Answer all the Questions

S.No.	Question	Course Outcome (CO)
1a.	Explain the three different inversions of mechanism which has four turning pair with appropriate applications (10)	1
1b.	A crank-rocker mechanism has a 70 mm fixed link, 20 mm crank, a 50 mm coupler and a 70 mm rocker. Draw the mechanism and determine the maximum and minimum values of the transmission angle. a.) Locate the two toggle positions and find the corresponding crank angles b.) Calculate the transmission angles (10) 20	1
2	In the toggle mechanism shown in Fig 1, the slider D is constrained to move on a horizontal path. The crank OA is rotating in the counter-clockwise direction at a speed of 180 r.p.m. increasing at the rate of 50 rad/s^2. The dimensions of the various links are as follows: OA = 180 mm; CB = 240 mm; AB = 360 mm; and BD = 540 mm. For the given configuration, find 1. Velocity of slider D and angular velocity of BD, and 2. Acceleration of slider D and angular acceleration of BD. (20)  Fig 1	2
3	A cam is to give the following motion to a knife-edged follower : 1. Outstroke during 60° of cam rotation ; 2. Dwell for the next 30° of cam rotation ; 3. Return stroke during next 60° of cam rotation, and 4. Dwell for the remaining 210° of cam rotation. The stroke of the follower is 40 mm and the minimum radius of the cam is 50 mm. The follower moves with uniform velocity during both the outstroke and return strokes. Draw the profile of the cam when the axis of the follower passes through the axis of the cam shaft. (10)	3