

CONTINUOUS INTERNAL EVALUATION - 3

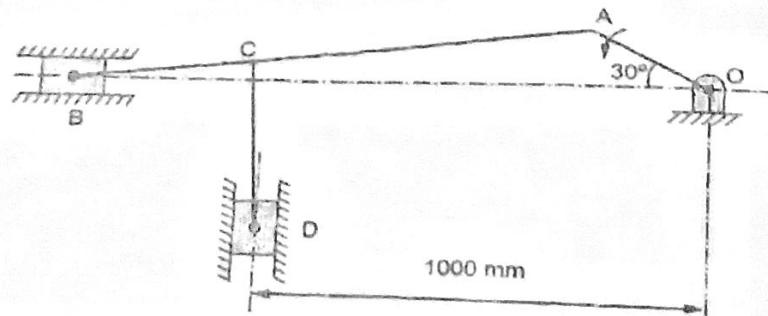
Dept: ME	Sem / Div: 4 A	Sub: KINEMATICS OF MACHINES	S Code: 18ME44
Date: 02/09/2022	Time: 1:00pm-2:30pm	Max Marks: 50	Elective: N

Note: Answer any 2 full questions, choosing one full question from each part.

QN	Questions	Marks	RBT	CO's
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PART A

- | | | | | | |
|---|---|---|----|----|-----|
| 1 | a | Derive an expression for Analytical Synthesis of Four Bar Mechanism (Freudenstein's Equation) | 10 | L2 | CO3 |
| | b | Crank OA of a compund slider crank mechanism as shown in fig, rotates at 20rpm. Anticlockwise and gives motion to sliding blocks B and D. The dimensions of various links are OA = 300mm, AB = 1200mm, BC = 450mm and CD = 450mm. Determine the linear acceleration of block D. | 15 | L2 | CO3 |



OR

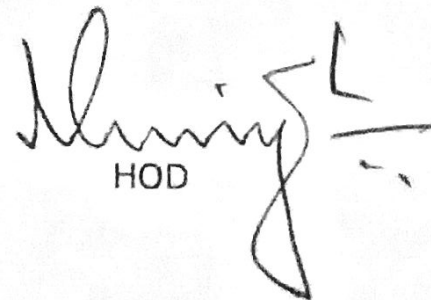
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|---|---|--|----|----|-----|
| 2 | a | Write a short note on Synthesis Process and also describe three methods involved in Synthesis Process. | 10 | L2 | CO3 |
| | b | Explain the Coriolis Component and derive an expression for the Coriolis Component of Acceleration | 15 | L3 | CO3 |

PART B

3 a	Derive an expression to find Length of Path of Contact in Spur Gear profile.	10	L2	CO5
b	Two involute gears with number of teeth 28 and 45 are in mesh. If they have standard addendum $a = 1$ module and pressure angle is 20 degree find the following: a. Path of Approach, b. Path of Recess, C. Contact Ratio d. Angle of Approach for pinion if pinion is driver. Assume module = 3mm.	15	L2	CO5
OR				
4 a	With a neat sketch write a short note on Gear Terminology.	10	L2	CO5
b	Derive an Expression for minimum number of teeth on Gear and Pinion to avoid interference	15	L2	CO5



Prepared by: Sudarshan M L



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