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Bengaluru

Mid Term Examinations - October 2026

Date: 06/10/2026 **Time:** 11:45 AM - 01:15 PM

Course Code: MEC2504 **Course Name:** Theory of Machines

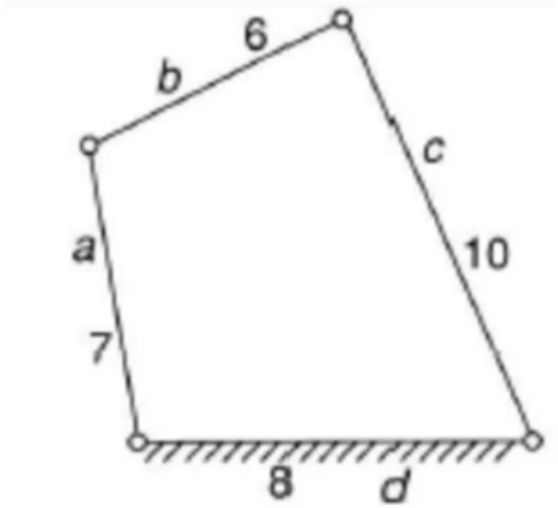
Semester: Fifth Semester **Max. Marks:** 50 **Weightage:** 50%

CO - Levels	CO1	CO2
Marks	48	42

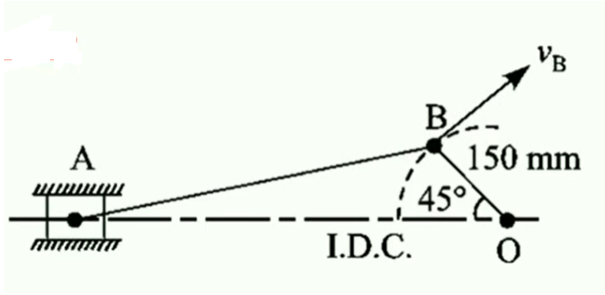
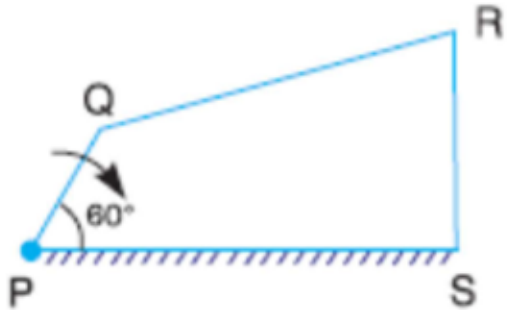
PART A: Answer Following Questions. 10 M

Q.N.	Questions	M	CO	BT
1	What is meant by inversion of a mechanism?	2	CO1	BT1
2	State Grashof's Law.	2	CO1	BT1
3	What is meant by binary and ternary links?	2	CO1	BT1
4	What is the difference between linear velocity and angular velocity?	2	CO2	BT1
5	Define constrained motion.	2	CO1	BT1

PART B: Answer Any 1 Following Questions. 20 M

Q.N.	Questions	M	CO	BT
6	6a) With a neat sketch explain the working priciple of Oldham's couplings 6b) With a neat sketch explain the working principle of Double lever mechanism	20	CO1	BT2
7	7a)Find the maximum and minimum transmission angle for the following mechanism fig.  fig. 7b)With the aid of a neat, labeled line diagram, apply the working principles of a Rack and Pinion steering gear mechanism to explain how rotational motion of the steering wheel is converted into linear movement of the road wheels.	20	CO1	BT3

PTO (Please Turn Over)

PART C: Answer Any 1 Following Questions. 20 M				
Q.N.	**Questions**	**M**	**CO**	**BT**
8	The crank of a slider crank mechanism rotates clockwise at a constant speed of 200 r.p.m shown in below fig. The crank is 150 mm and the connecting rod is 600 mm long. At a crank angle of 45° from inner dead Centre position, Determine: 1. Linear velocity and acceleration of the connecting rod, and 2. angular velocity and angular acceleration of the connecting rod.  fig	20	CO2	BT3
9	PQRS is a four bar chain with link PS fixed shown in below fig. The lengths of the links are PQ =62.5 mm ; QR = 175 mm ; RS = 112.5 mm ; and PS = 200 mm. The crank PQ rotates at 20 rad/s clockwise. Draw the velocity and acceleration diagram when angle QPS = 60° and Q and R lie on the same side of PS. Find the angular velocity and angular acceleration of links QR and RS.  fig	20	CO2	BT3