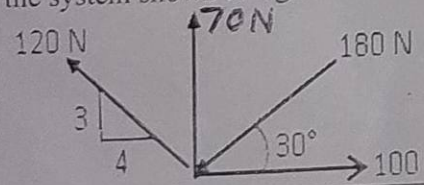
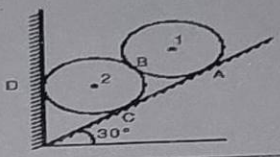
Name: Student University Roll No.:	Printed Pages:2

School of Engineering
First Sessional Examination, Even Semester (AS: 2023-24)
B. Tech: (CS, CS-AI, CCML & IOTBC)
Year:1 Semester:2

Course Title: Engineering Mechanics **Course Code: NME4201**	**Max Marks:30** **Time: 1 *hr***

Instructions if any: Read the question Carefully.
Be precise and specific in writing.
Calculator is allowed.

	SECTION 'A' **Q.N.1. Attempt all parts of the following:**	Course Objective	Marks
a)	Write the Statement of Varignon's theorem .	CO1	1
b)	Write the condition of equilibrium for concurrent and non-concurrent force system.	CO1	1
c)	How can you change the UDL to point load, if 50N/m UDL acted at centre of Simply supported beam of span 10 meter?	CO2	1
d)	Define moment of force.	CO1	1
e)	State Lami's theorem.	CO1	1
	SECTION 'B' **Q.N.2. Attempt any two parts of the following:**	Course Objective	Marks
a)	State and explain the following laws of forces: (i) Triangle law of forces. (ii)Law of parallelogram of forces.	CO1	7.5
b)	Discuss Types of Beam with neat sketch.	CO2	7.5
c)	Determine magnitude and direction of resultant force for the system shown in figure. 	CO1	7.5
d)	Two identical rollers, each of weight 80N are supported by an inclined plane and vertical wall. Determine reactions at all point of contacts A,B,C & D. Assuming frictionless surfaces. 	CO1	7.5

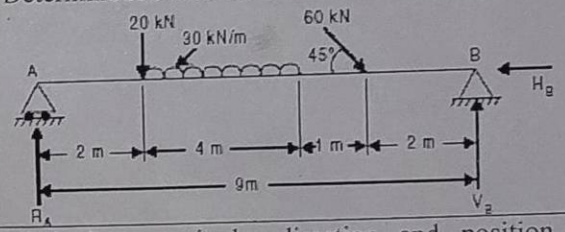
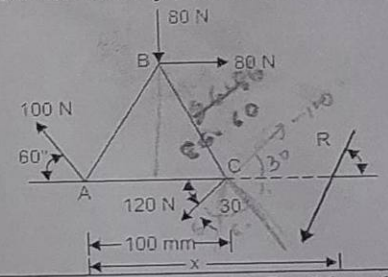
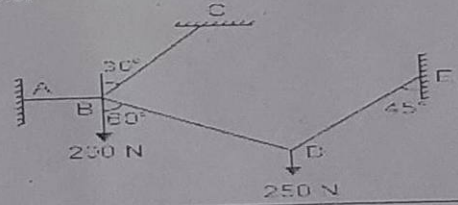
	SECTION 'C'	Course Objective	Marks
	Q.N.3. Attempt any one part of the following:		
a)	Determine reaction force at A and B for fig 	CO2	10
b)	Find the magnitude, direction and position of the resultant force system as shown in fig. 	CO1	10
c)	A system of connected flexible cables shown in Fig. is supporting two vertical forces 200 N and 250 N at points B and D. Determine the forces in various segments of the cable. 	CO1	10

Table 1: Mapping between COs and questions
(Number of COs may vary from course to course)

COs	Questions Numbers	Total Marks
CO1	1-a,b,d,e, 2-a,c,d 3-b,c	46.5
CO2	1-c, 2-b, 3-a	18.5