Vivekananda College of Engineering & Technology, Puttur [A Unit of Vivekananda Vidyavardhaka Sangha Puttur ®] Affiliated to VTU, Belagavi & Approved by AICTE New Delhi			
CRM08	Rev 1.10	Basic Science	03/03/21

CONTINUOUS INTERNAL EVALUATION - 2

Dept: Basic Science	Sem/Div: I sem A,B,C	Sub: Engineering Mechanics	S Code: 18CIV14
Date:06-03-21	Time: 9.30-11.00	Max Marks: 50	Elective: N

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

QN		Questions	Marks	RBT	CO's
		PART A			
1	a	Prove that angle of repose is equal to angle of friction	5	L2	CO3
	b	In the fig1b, portion BC of the string is horizontal and the pulley is friction-less. Determine the tension in different parts of the string.	10	L3	CO3
	c	A ladder 6m long weighing 300N is resting against a wall at an angle of 60° to the horizontal ground as in fig1c. Man weighing 750N climbs the ladder. At what position along the ladder from the bottom does he induce slipping? μ=0.2	10	L3	CO3
		OR			
2	a	State & prove Lami's theorem	5	L2	CO3
	b	Find the reactions developed at contact points A, B, C, D supporting two identical rollers each of weight 1000N as shown in fig 2b.	10	L3	CO3
	c	What should be the value of angle θ in fig 2c which will make the motion of 900N block down the plane to impend? Take $\mu = \frac{1}{3}$ for all contact surfaces.	10	L3	CO3
		PART B			
3	a	List the assumptions made in the analysis of trusses	5	L2	CO3
	b	Find the support reactions for the beam shown in fig3b.	10	L3	CO3

	c	Find the forces in members of truss shown in fig3c using method of joints and tabulate member forces.	10	L3	CO3
		OR			
4	a	Mention the types of supports & mark their reaction lines.	5	L2	CO3
	b	Find the length 'x' so that the reactions at both the supports are equal for the beam as shown in fig4b.	10	L3	CO3
	c	Analyze the frame in fig4c and tabulate the member forces	10	L3	CO3

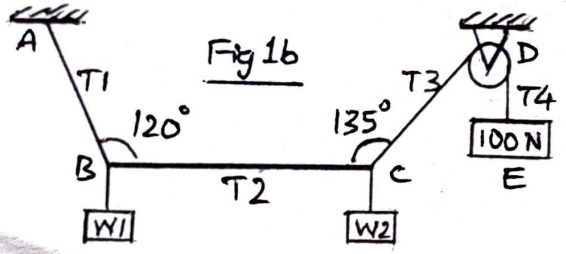


Fig 1b

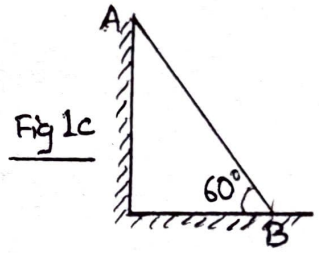


Fig 1c

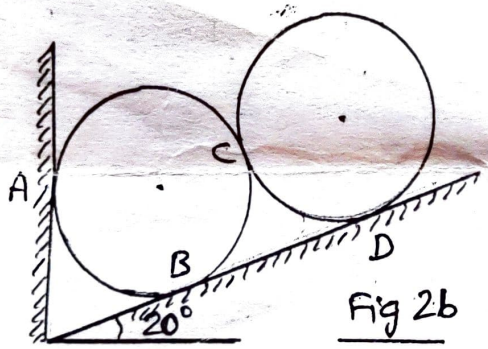


Fig 2b

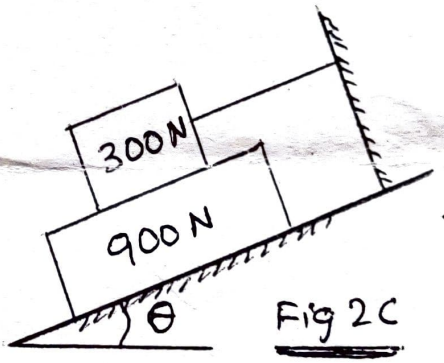
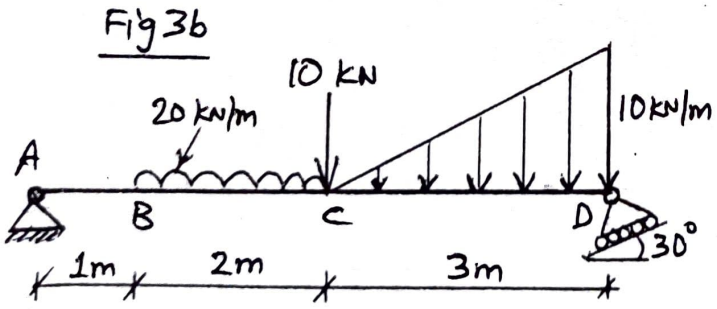
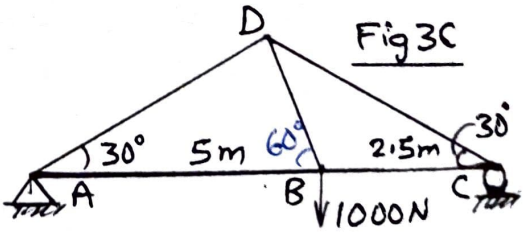


Fig 2C





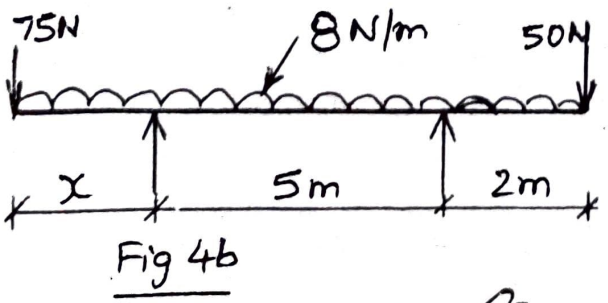
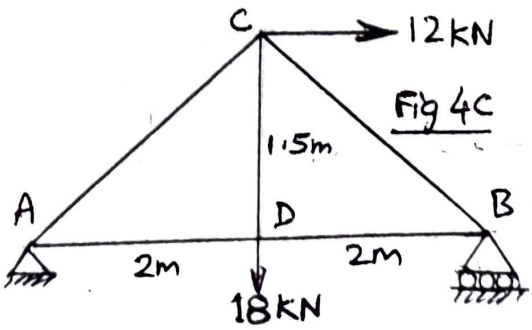


Fig 4b



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