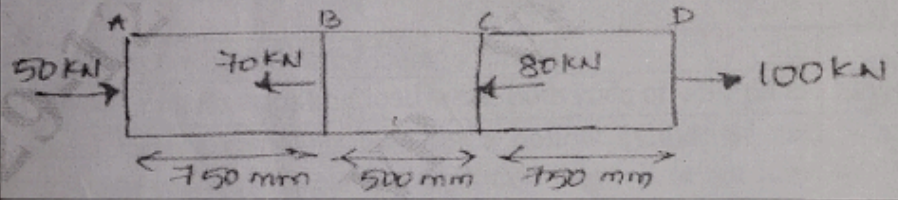
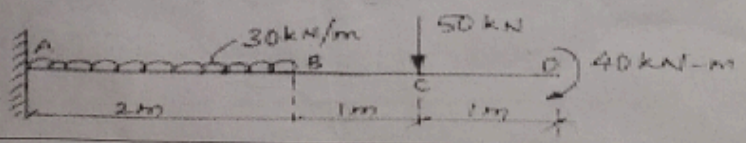
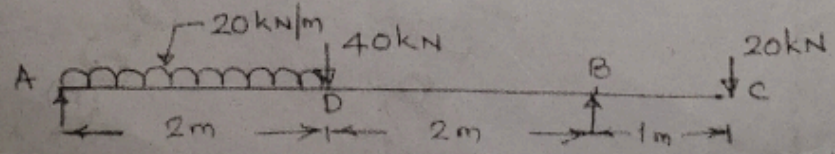
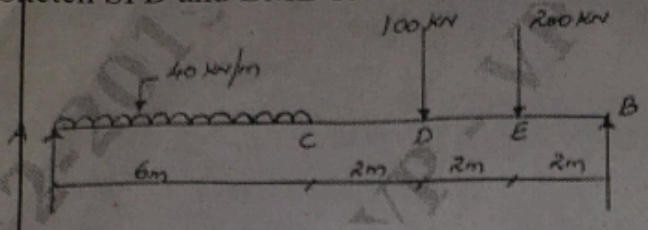
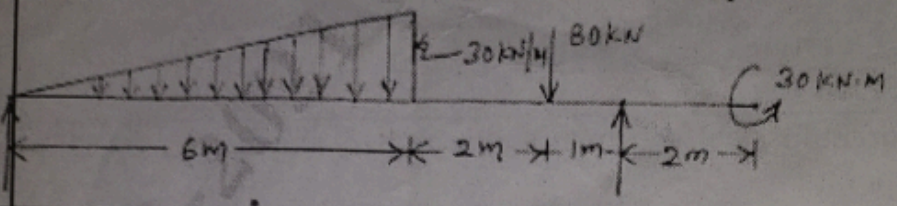
Vivekananda College of Engineering & Technology, Puttur [A Unit of Vivekananda Vidyavardhaka Sangha Puttur ®] Affiliated to VTU, Belagavi & Approved by AICTE New Delhi			
CRM08	Rev 1.10	Civil	20/03/22

CONTINUOUS INTERNAL EVALUATION- 1

Dept: Civil	Sem / Div: 3 sem	Sub: Strength of Materials	S Code: 18CV32
Date: 22-03-2022	Time: 11.00-12.30 PM	Max Marks: 50	Elective: N

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

QN		Questions	Marks	RBT	COs
		PART A			
1	a	Draw the stress-strain curve for mild steel specimen subjected to axial tension and indicate the salient points	5	L2	CO1
	b	A weight of 390 kN is supported by a short column of 250mm x 250mm square in section. The column is reinforced with 8 steel bars of cross sectional area 2500mm^2. Find the stresses in steel and concrete if Es=15Ec. If stress in concrete must not exceed 4.5MN/m^2, what area of steel is required in order that column may support a load of 480 kN.	10	L3	CO1
	c	A bar of 20mm diameter is tested in tension. It is observed that when a load of 37.7 kN is applied, the extension measured over a gauge length of 200mm is 0.12mm and contraction in diameter is 0.0036mm. Find the Poisson's ratio, Youngs modulus, Bulk modulus and Moduls of rigidity.	10	L3	CO1
		OR			
2	a	Write a note on temperature stresses with sketches	5	L2	CO1
	b	A circular bar of uniform cross sectional area of 1000 mm^2 is subjected to forces as shown in figure. If Youngs modulus for the material is 200 GPa, determine the total deformation 	10	L3	CO1
	c	A steel bar of 20mm diameter is subjected to tension test in lab. Determine stress, strain, Young's Modulus, percentage elongation from the following data. Gauge length= 200 mm, extension at a load of 100kN is 0.147mm, total elongation =50mm. Also determine the percentage decrease in cross sectional area of the specimen, if the diameter of the rod at failure is 16mm.	10	L3	CO1
		PART B			
3	a	Define SF, BM, Point of Contra-flexure	5	L2	CO3
	b	Draw SFD and BMD for a cantilever beam subjected to loads as shown. 	10	L3	CO3
	c	Draw SFD & BMD for the overhanging beam shown 	10	L3	CO3
		OR			

4	a Explain types of loads on beams	5	L2	CO3
	b Sketch SFD and BMD for the beam shown at salient points 	10	L3	CO3
	c Sketch SFD & BMD for the beam sown at salient points. 	10	L3	CO3