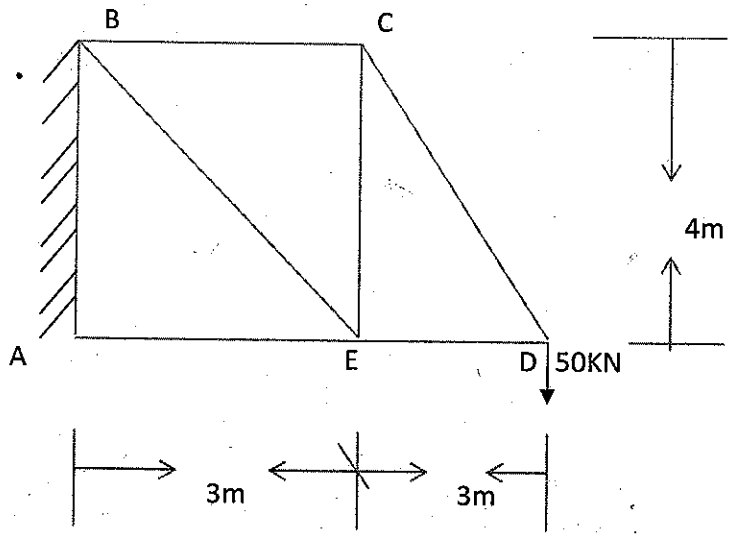
Ref. No. EX/CE/5/T/105/2019

B.E(Civil Engg.)1st Year 2nd Semester Exam 2019

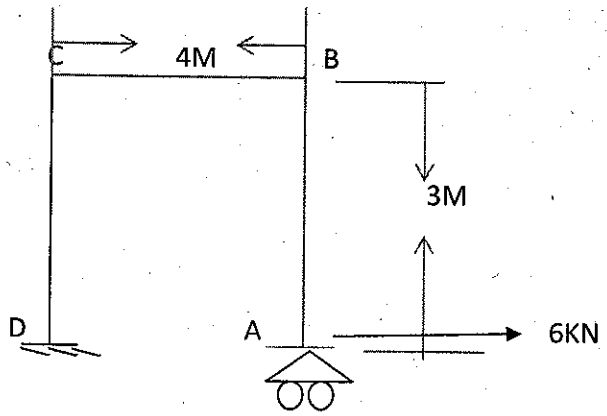
Time : Three hours | Sub: Structural Mechanics-II. | Full Marks : 100

Answer Question No.1 & and any 4 from Q. No. 2- Q. No. 7

1. Determine the vertical downward deflection at point E of the truss as shown in figure. The cross sectional area of BC=CD=2500mm^2 and AE=ED=3000 mm^2. BE=CE=5000 mm^2. Take E= 2.1X10^{5}N/mm^2. [20]

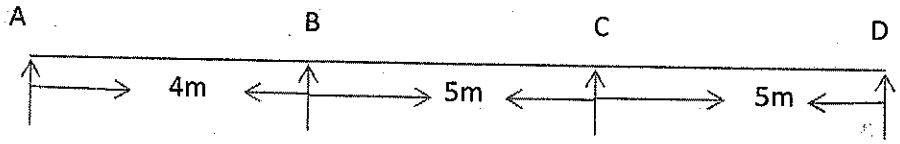


2. A) Determine the Horizontal deflection of Point A in the frame as shown in Figure. Take E= 2X10^5 N/mm^2. I= 30X10^6 mm^4 [15+5=20.]



B) State& explain the Strain energy principle.

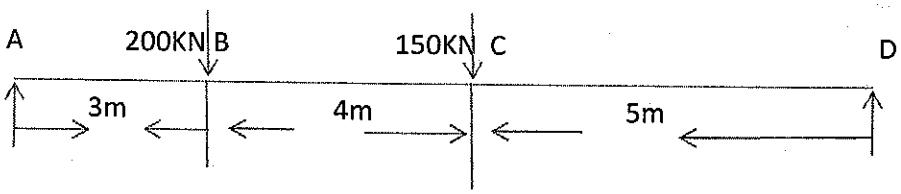
3. Draw the SFD & BMD of the continuous beam as shown in figure. Use Three moments equations. AB=20KN/m, BC= 25 KN/m, CD= 20 KN/m. [20]



4. State & explain the Castigliano's 1st principle. [10+10=20]
A simple supported beam of Span L , carries a concentrated load P at a distance a from the left end side support. Using castigliano's theorem determines the deflection under the load. Assume EI is constant.

5. State & explain the claypeyrons three moments theorem.[10+10=20]
What do you mean by conjugate beam? Write the assumptions of conjugate beam.

6. Find the slope & deflection of the continuous beam as shown in figure. Assume any other data if required. Apply conjugate beam method.AB= I, BC=1.5I, CD=2I, [20]



7. State & explain the Moment area theorm. Find the deflection at point c using moment area theorem. Take EI=8000Kn.m^2 [5+15=20]