53 (CE 503) STAN-II

2017

STRUCTURAL ANALYSIS-II

Paper : CE 503

Full Marks : 100

Time : Three hours

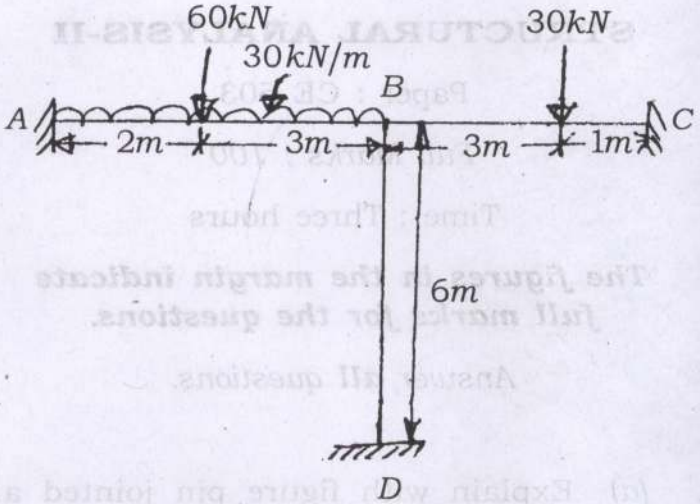
The figures in the margin indicate full marks for the questions.

Answer ***all*** *questions.*

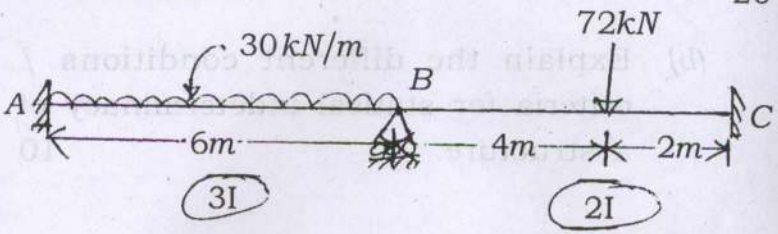
1. *(a)* Explain with figure pin jointed and Rigid jointed skeletal structure with reference to plane frame and space frame analysis. 10

   (b) Explain the different conditions / criteria for statical indeterminacy of a structure. 10

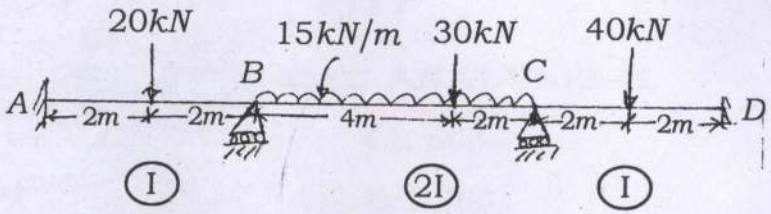
2. Find the binding moments at points A, B, C and D in the following figure using slope deflection method. Also draw its B.M.D. EI is constant. 20



3. Analyse the continuous beam using moment distribution technique. Also draw the B.M.D. 20



4. Analyse the following beam using Kani's method or Rotation contribution method. Also draw the B.M.D. 20



5. A retaining wall of $10m$ high with a vertical back retains moist sand with a horizontal surface. The sand weights $15kN/m^3$ with an angle of internal friction of 30°. Determine —

   (a) The total active pressure on the wall per metre run.

   (b) If water table rises to the crest of the wall, draw the pressure diagram and find the total pressure on the wall per metre run. Take saturated specific weight of the soil equal to $20kN/m^3$.

20
