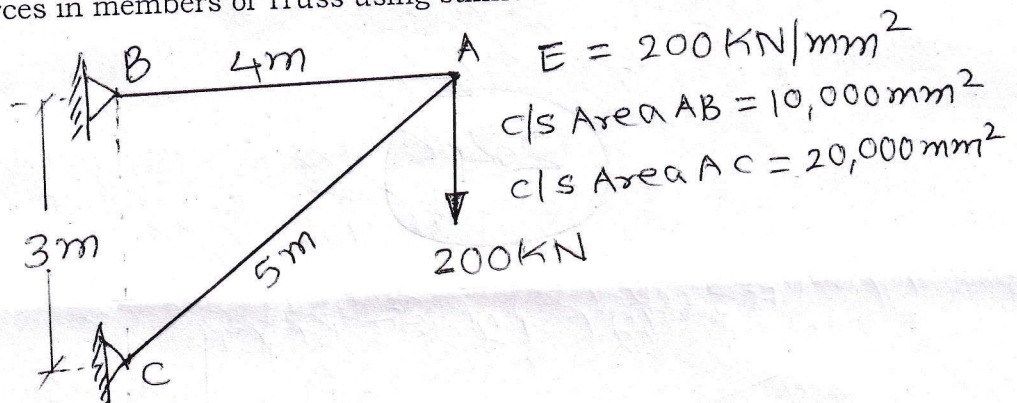paper code: PN9-114 (T1)

G.R. No.	

[Max. Marks: 20]

Time: [1 Hour]

(*) Instructions to candidates:
1) Answer Q.1 OR Q.2, Q.3 OR Q.4
2) Figures to the right indicate full marks.
3) Use of scientific calculator is allowed
4) Use suitable data where ever required

Q.1)Determine forces in members of Truss using stiffness method [10 marks]

$E = 200 \, KN/mm^2$

c/s Area AB = 10,000 mm^2

c/s Area AC = 20,000 mm^2

OR

Q.2)a)Derive Linear constitutive stress-strain relationship in three dimensions in equilibrium [6marks]

b)State advantages and disadvantages of FEM [4marks]

Q.3)a)Determine stiffness matrix for beam element neglecting axial deformations [6 marks]
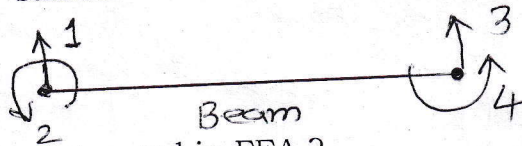
b)What are the elements used in FEA ? [4marks]

OR

Q.4)a)Explain the term 'Shape Function'. Why polynomial terms are preferred for shape function in FEM ? [6marks]

b)Find shape function for two noded bar element ,assuming suitable polynomial function. [4marks]

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