B.E.(with Credits)-Regular-Semester 2012-Civil Engineering Sem VII

BE - Structural Analysis III

P. Pages : 3 **GUG/W/16/6531**

Time : Four Hours * 4 7 2 5 * Max. Marks : 80

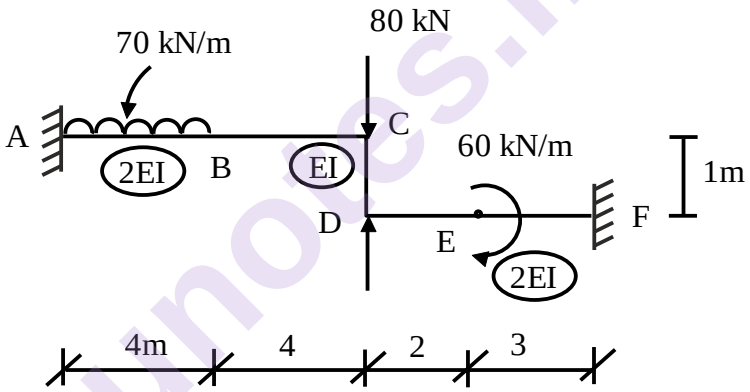
Notes : 1. All questions are compulsory.
2. Answer all questions.
3. Due credit will be given to neatness and adequate dimensions.
4. Assume suitable data wherever necessary.
5. Illustrate your answers wherever necessary with the help of neat sketches.

1. Derive the member stiffness matrix for 2 noded beam element with 2 DOF per node. **16**

OR

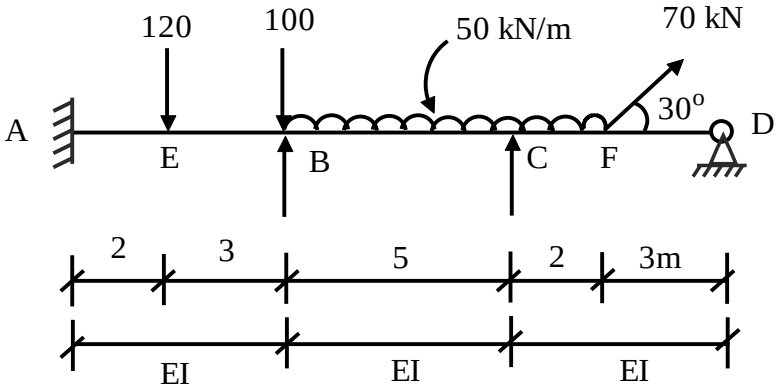
2. Derive the member stiffness matrix for 2 noded truss element with full DOF. **16**

3. Find SFD & BMD for the beam shown below. **16**



OR

4. Find SFD & BMD for the continuous beam shown below. Supp. B sinks by 50/EI m. **16**



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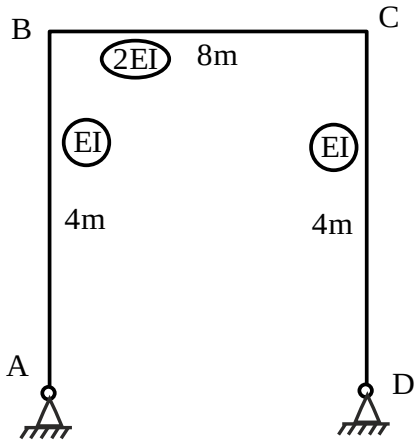
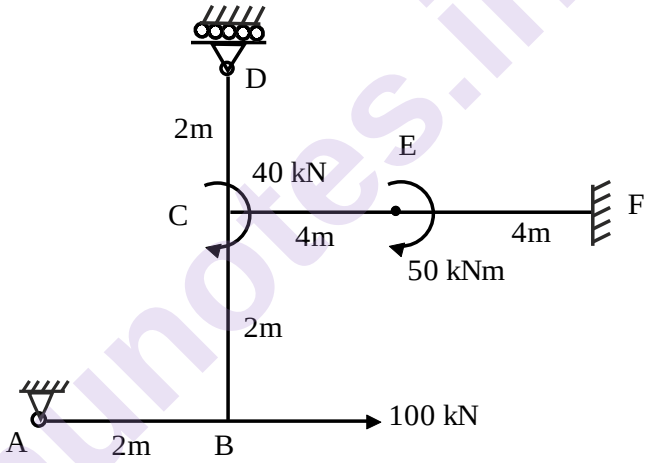
5. Analyse the frame shown below using direct stiffness method. Supp. D yields by 4 radians clockwise. **16**

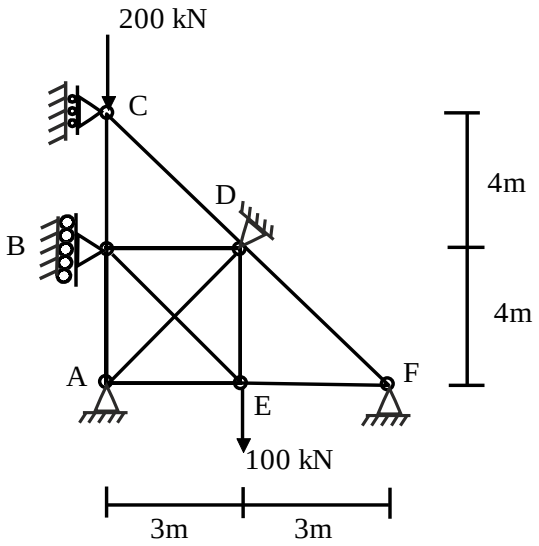


OR

6. Find global load vector for frame shown below considering axial deformation. A, E, I is uniform. **16**



7. Analyse the frame shown below using direct stiffness method. AE is uniform. **16**



OR

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8.	a)	Explain clearly with example the D'Alemberts principle.	**8**
	b)	Explain linearly elastic & linearly inelastic system with suitable example.	**8**
9.	a)	Explain the shape function & its use in FEM.	**8**
	b)	Explain the interpolation function & its use in FEM with suitable example.	**8**

OR

10.	a)	What are the storage techniques.	**8**
	b)	Explain the Rayleigh Ritz method to solve the problem of two noded bar element.	**8**

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