R09

Code No: C2008

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
M.Tech I - Semester Examinations March/April-2011
ADVANCED STRUCTURAL ANALYSIS
(STRUCTURAL ENGINEERING)

Time: 3hours **Max.Marks:60**

Answer any five questions
All questions carry equal marks
- - -

1. a) What do you understand by "static" in determining? Illustrate with sketch 1 & 2 degree statically indeterminate frames internal & external.
   b) Generate the flexibility matrix for an cantilever beam span L, flexural. rigidity EI, subjected to actions A_1 and A_2 at the free end. Fig.1 [12]

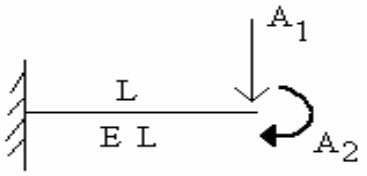

Fig.1

2. Using stiffness method analyses the two –span continuous beam loaded as shown in Fig. 2 [12]

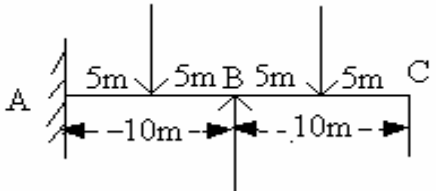

Fig.2

3. Analysis the pin – jointed turn loaded as shown in Fig.3 by the Flexibility method and find the horizontal displacements of joints B and C the vertical displacement of joint B. [12]

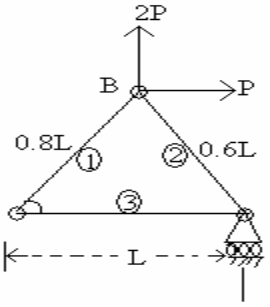

Fig.3

Contd….2

4. Analysis the portal frame by the stiffeners method and find the moments at the joints A, B, C, of D of Fig.4 (EI = Constant). [12]

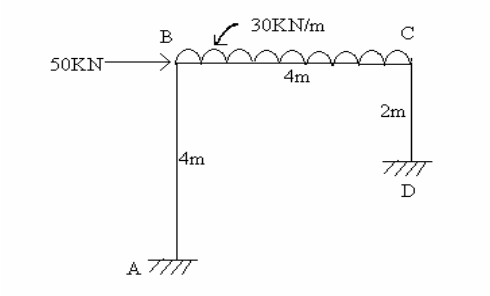

Fig.4

5. What are "shear walls"? Describe the structural behaviour of large frames without and with shear walls. [12]

6. Illustrate the analysis of grid structure by the stiffness method taking a simple example. [12]

7. Explain how the initial and thermal stresses can be accounted for in the Electricity method by taking a simple example. [12]

8. Write short notes on any **three**: [12]
   a) Local of Global co-ordinates
   b) Load vector
   c) Semi –band width
   d) Sub structuring

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