Q.P. Code: 16CE2003 **R16**

Reg. No. | | | | | | | | | | |

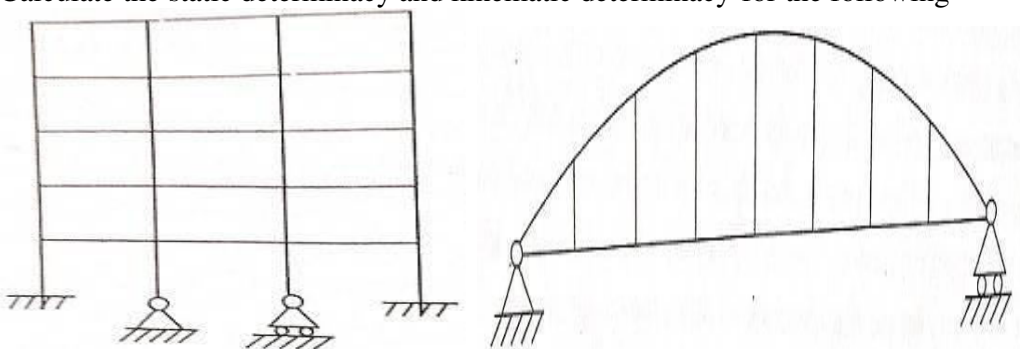
SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)
M.Tech I Year I Semester Regular & Supplementary Examinations February 2018
ADVANCED STRUCTURAL ANALYSIS
(Structural Engineering)

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

(Answer all Five Units **5 X 12 =60** Marks)

UNIT-I

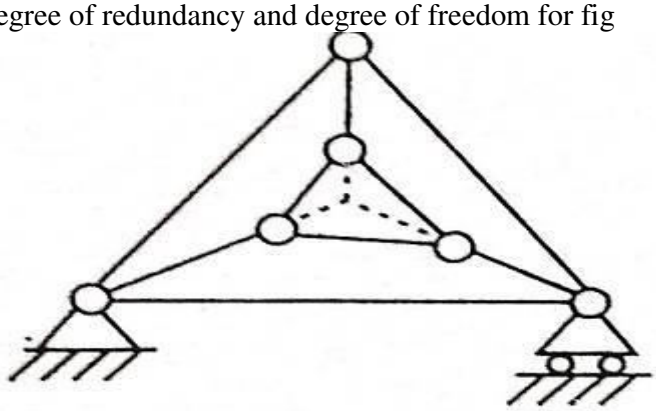
1 Calculate the static determinacy and kinematic determinacy for the following



12M

OR

2 Calculate the degree of redundancy and degree of freedom for fig



12M

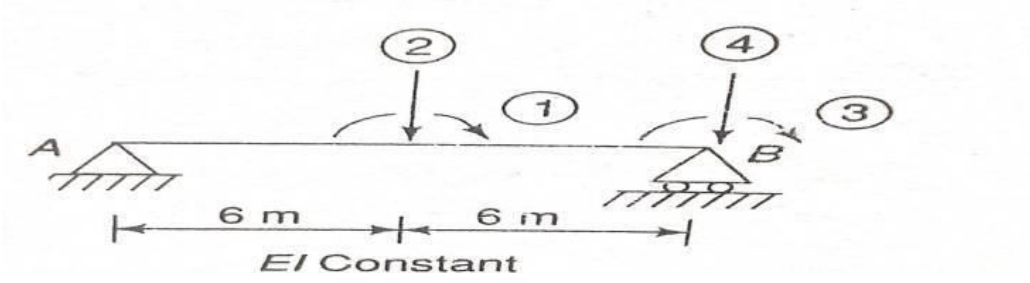
UNIT-II

3 a. Derive the relation between flexible and stiffness matrix 6M

b. Write the procedure analyzing of structure by stiffness method. 6M

OR

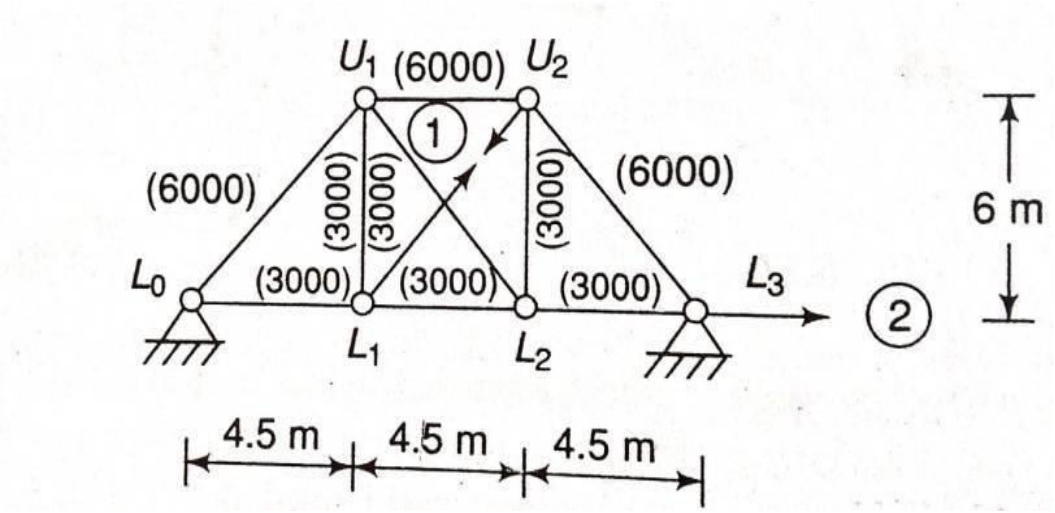
4 Develop the flexibility matrix for the simply supported beam AB with reference to the coordinates shown in fig



12M

UNIT-III

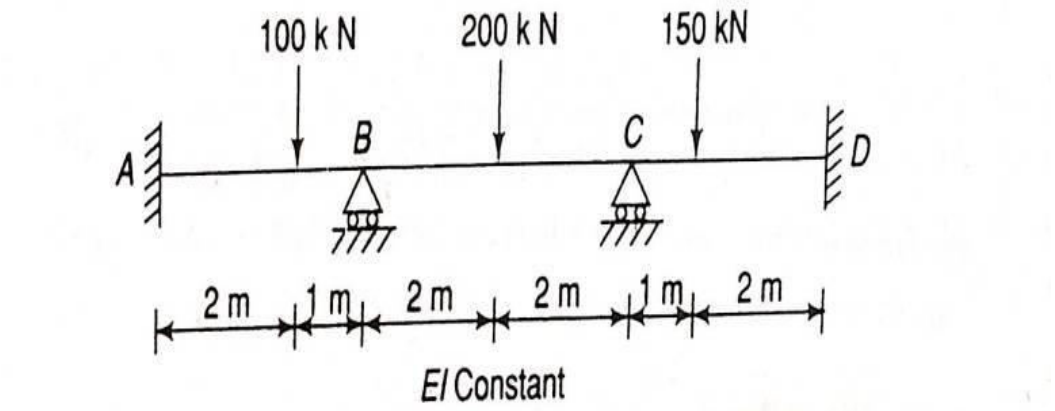
5 Develop the flexibility matrix for the pin-jointed plane frame with reference to coordinates 1& 2 shown in fig. The numbers in parentheses are the cross-sectional areas of the member in mm^2



12M

OR

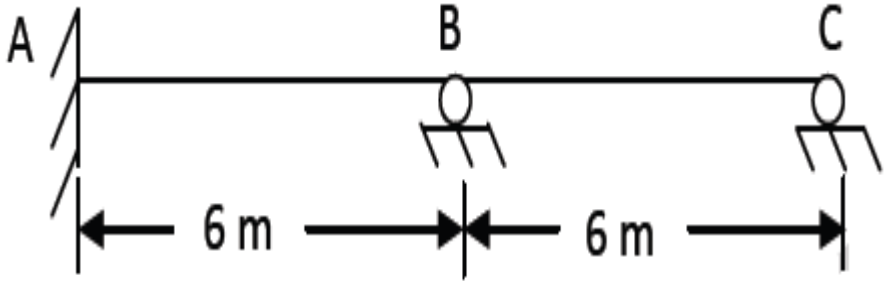
6 Analyze the continuous beam shown in Fig by displacement method



12M

UNIT-IV

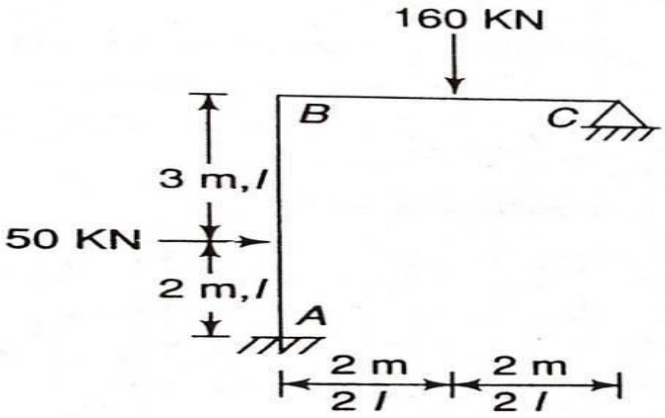
7 Using displacement method, analyze the continuous beam as shown in figure below. The Support C sinks by 120/EI. Draw BMD.



12M

OR

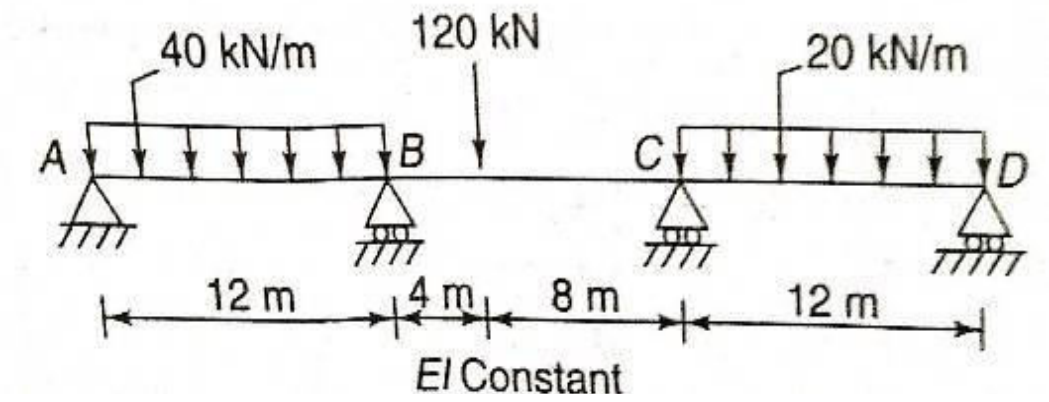
8 Analyze the frame shown in fig by force method.



12M

UNIT-V

9 Analyze the continuous beam shown in fig by using force method. Use matrix Transformations method.



12M

OR

10 a. Write short notes on
(i) Band Matrix and Semi band width.
(ii) Cholesky method. 6M

b. A system of linear algebraic equations is given below. Obtain the solution by Cholesky method.
x+2y-3z = 7
3x+2y+2z = -5
4x - y+5z = 5 6M

***** END *****