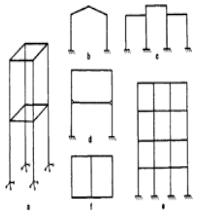
	Course Title: **THEORY OF STRUCTURES**		
	Credits (L:T:P) : **4:0:0**	Total Contact Hours: **52**	Course Code: **15CE63G**
	Type of Course: **Lectures, Student activity**	Credit **:04**	Core/ Elective: **Elective**
CIE- 25 Marks			SEE- 100 Marks

Prerequisites: Knowledge of basic Mathematics, Strength of Materials.

Course Objectives:

1. To analyse the structures with the help of free body diagram by different methods.

On successful completion of this course, the student will be able to:

Course Outcome		**CL**	**Linked PO**	**Teaching Hrs**
CO1	Identify statically determinate and indeterminate structures	**R/U/Ap/An**	1,2,3,5,6,10	13
CO2	Analyse beams by slope deflection method	**U/Ap/An**	2,3,5,10	13
CO3	Analyse continuous beams and portal frames by moment area method.	**U/Ap/An**	2,3,5,8,10	13
CO4	Analyse the trusses	**U/Ap/An**	2,3,4,5,9,10	13
CO5	Suggested activity	**R/U/Ap/An/E**	1 to 10	*
TOTAL				52

Legend- R; Remember U: Understand Ap: Application Ay: Analysis C:Creation E: Evaluation

*** Related to Student activity beyond classroom hours.**

Programme outcome Attainment Matrix

Course	**Programme Outcome**									
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**
	Basic knowledge	Discipline knowledge	Experiments and practice	Engineering Tools	Engineer and society	Environment & Sustainability	Ethics	Individual and Team work	Communication	Life long learning
THEORY OF STRUCTURES	1	3	3	1	3	2	-	2	1	3

Level 3- Highly Addressed, Level 2-Moderately Addressed, Level 1-Low Addressed.

Method is to relate the level of PO with the number of hours devoted to the COs which address the given PO.

If ≥40% of classroom sessions addressing a particular PO, it is considered that PO is addressed at Level 3

If 25 to 40% of classroom sessions addressing a particular PO, it is considered that PO is addressed at Level 2

If 5 to 25% of classroom sessions addressing a particular PO, it is considered that PO is addressed at Level 1

If < 5% of classroom sessions addressing a particular PO, it is considered that PO is considered not-addressed.

DETAILED COURSE CONTENT

UNIT	COURSE CONTENTS	HOURS
1	**INTRODUCTION STATIC AND KINEMATIC INDETERMINACY.** Introduction to Structural Systems- Classification of structures, Structural forms, Loads, Conditions of equilibrium, Compatibility conditions, Statically determinate and indeterminate structures, degree of Static and Kinematic indeterminacy, free body movement diagram. Different methods to analyse Statically indeterminate & Kinematically Indeterminate Structures.	13
2	**SLOPE DEFLECTION METHOD-**Introduction, Sign conventions, Development of slope deflection equations, Analysis of beams-fixed beams, Proped Cantilever beams, Continuous beams (2 spans).	13
3	**MOMENT DISTRIBUTION METHOD-**(Without Sway): Introduction, Definition of terms- Distribution factor, Carry over factor, Analysis of Continuous beams (2 spans), Problems on portal frame. (Single column & single bay, Two column & single bays)	13
4	**ANALYSIS OF PIN JOINTED DETERMINATE PLANE TRUSSES-** Introduction and types of Trusses, Assumptions, Analysis by Method of joints.	13
	Total	52

COURSE DELIVERY: The course will be delivered through lectures and Practices

STUDENT SUGGESTED ACTIVITIES

The topic should be related to the course in order to enhance his knowledge, practical skill & and lifelong learning, communication, modern tool usage.

1. Solve the solved problems in the class rooms by kanis method, prepare a spread sheet make a report and present it

NOTE:

1. Students should select any one of the above or other topics relevant to the subject approved by the concerned faculty, individually or in a group of 3 to 5. Students should mandatorily submit a written report and make a presentation on the topic. The task should not be repeated among students. Report will be evaluated by the faculty as per rubrics. Weightage for 5 marks Internal Assessment shall be as follows:

Unsatisfactory **1,** Developing **2,** Satisfactory **3,** Good **4,** Exemplary **5.**

2. Reports should be made available along with bluebooks to IA verification officer.

Example of model of rubrics / criteria for assessing student activity

Dimension	Students score (Group of five students)				
	STUDENT 1	STUDENT 2	STUDENT 3	STUDENT 4	STUDENT 5
Rubric Scale	Unsatisfactory **1**, Developing **2**, Satisfactory **3**, Good **4**, Exemplary5				
1.Organisation	2				
2.Team's roles & duties	3				
3.Conclusion	4				
4.Convensions	5				
Total	14				
Average=(Total /4)	3.5=4				
Note: Concerned faculty (Course coordinator) must devise appropriate rubrics/criteria for assessing Student activity for 5 marks One activity on any one CO (course outcome) may be given to a group of FIVE students					

Note: Dimension should be chosen related to activity and evaluated by the course faculty.

Dimension	Rubric Scale				
	1 Unsatisfactory	2 Developing	3 Satisfactory	4 Good	5 Exemplary
1.Literature	Has not included relevant info	Has included few relevant info	Has included some relevant info	Has included many relevant info	Has included all relevant info needed
2. Fulfill team's roles & duties	Does not perform any duties assigned	Performs very little duties	Performs partial duties	Performs nearly all duties	Performs all duties of assigned team roles
3.Communication	Poor	Less Effective	Partially effective	Effective	Most Effective
4.Convensions	Frequent Error	More Error	Some Error	Occasional Error	No Error

Course Assessment and Evaluation Scheme:

	What		To whom	When/Where (Frequency in the course)		Max Marks	Evidence collected	Course outcomes
Direct Assessment meth	CIE	IA	Students	Thrice test (Average of three tests)	Test 1	20	Blue books	CO1, CO2
					Test 2			CO3
					Test 3			CO4
				Activities		05	Written Report	CO1 to CO5
	SEE	End Exam		End of the course		100	Answer scripts at BTE	CO1,CO2,CO3, CO4
Indirect Assessment	Student Feedback on course		Students	Middle of the course			Feedback forms	CO1 CO2 & CO3 Delivery of course
	End of Course Survey			End of the course			Questionnaires	CO1 to CO5 Effectiveness of Delivery of instructions & Assessment Methods

*__CIE__ – Continuous Internal Evaluation *__SEE__ – Semester End Examination

Note: I.A. test shall be conducted for 20 marks. Average marks of three tests shall be rounded off to the next higher digit.

Note to IA verifier*: *The following documents to be verified by CIE verifier at the end of semester

1. Blue books (20 marks)
2. Student suggested activities report for 5 marks evaluated through appropriate rubrics.
3. Student feedback on course regarding Effectiveness of Delivery of instructions & Assessment Methods

Weightage of Marks and blue print of marks for SEE

Unit	Major Topics	Hours Allotted	Questions to be set for SEE – Cognitive Levels R	U	Ap	Ay	Marks weightage	weightage (%)	A*
1	Introduction	8	50% **10**	25% **5**	25% **5**	0% **0**	40	25	2
2	Slope deflection method	12	0% **0**	20% **10**	40% **15**	40% **15**	40	25	2
3	Moment distribution method	12	0% **0**	20% **10**	40% **15**	40% **15**	40	25	2
4	Analysis of trusses	12	0% **0**	0% **0**	50% **20**	50% **20**	40	25	2
	Total	52	**10%** **10**	**13%** **25**	**41%** **65**	**36%** **60**	160	100	8

Questions for CIE and SEE will be designed to evaluate the various educational components such as:

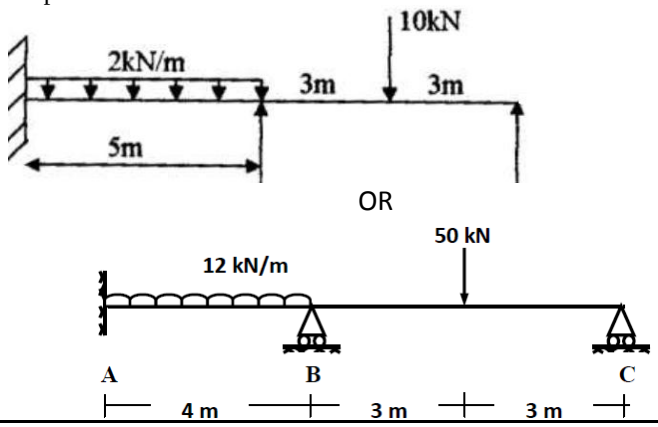
Sl. No	Bloom's taxonomy	% in Weightage
1	Remembering and Understanding	23%
2	Applying the knowledge acquired from the course	41%
3	Analysis	36%
4	Synthesis (Creating new knowledge)	0%
5	Evaluation	0%

MODEL Q.P FOR -CIE (TESTS)

Test/Date and Time	Semester/year	Course/Course Code	Max Marks
Ex: I test/ 6 th week of sem 10-11 Am	**V sem**	**THEORY OF STRUCTURES**	**20**
	Year: 2015-16	**Course code: 15CE63G**	

Name of Course coordinator : **Course Outcomes : 1 & 2**

Note: Answer all questions

	Questions	M	CL	CO	PO
1	Define degree of indeterminacy	**2**	**R**	**1**	**1,2,5**
2	Mention the difference between Static and Kinematic indeterminacy with exmples	**4**	**U**	**1**	**2,5**
3	Analyse the beam as shown in **Figure** below and draw BMD. Use Slope Deflection Method. 	**14**	**R/U Ap/An**	**2**	**1,2,3,4, 5**

REFERENCE TEXT BOOKS

1. R.C.Hibbeler, Structural Analysis, Pearson.
2. K.M.Leet,C.Ming UanG&A.M.Gilbert, Fundamentals of Structural Analysis, TATA McGraw Hill Education.
3. Devdas Menon, Structural Analysis, Narsoa
4. G.S.Pandit,S.P.Gupta&R.Gupta, Theory of Structures Vol-I&II, TATA McGraw Hill Education.
5. L.S.Negi&R.S.Jangid, Structural Analysis, TATA McGraw Hill education.
6. S.Ramamrutham &R.Narayan, Theory of Structures, Dhanpat Rai & Son.
7. C.S.Reddy, Basic Structural Analysis, TATA McGraw Hill education.
8. B.C.Punmia.Ashok Kumar Jain& Arun Kumar Jain, Theory of Structures, LAXMI.
9. S.S.Bhavikatti, Structural Analysis I&II, VIKAS
10. Theory of Structures Vol-1 by Pandit and Gupta, Tata McGraw Hill, New Delhi.
11. Basic Structural Analysis by C S Reddy, Tata McGraw Hill, New Delhi.

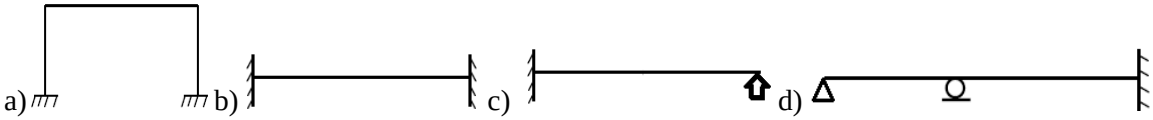
12. Elementary Structural analysis, Norris and Wilbur, International student edition, Tata McGraw Hill book Co, New York.
13. Structural Analysis by R C Hibler, 5th edition, Pearson Education Inc.
14. J. Sterling Kinney, "Indeterminate Structural Analysis", Oxford and Publishing Co.
15. Noris C.H., Wilbur J.B., "Elementary Structural Analysis", Mc Graw Hill International Book Edition.
16. C.K. Wang, "Intermediate Structural Analysis", Mc Graw Hill Publications.
17. Ashok K. Jain, "Advanced Structural Analysis", Nem Chand & Bros., Roorkee, India.

MODEL QUESTION PAPER

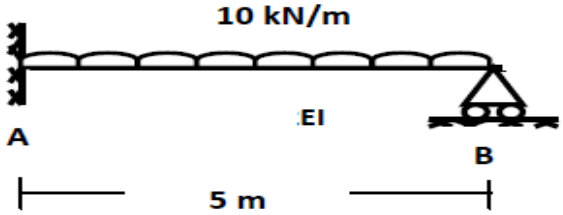
Time: 3hours **THEORY OF STRUCTURES** Max.marks:100

Answer any five full question 20 x 5= 100

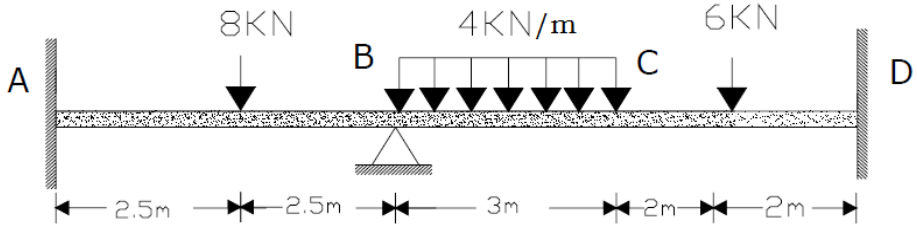
1. a)State Conditions of equilibrium b)Define redundant force
   c)Mention the difference between Static and Kinematic indeterminacy with exmples
2. Find degree of indeterminacy of structures as given below



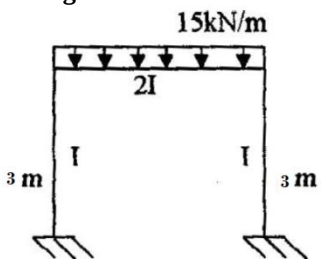
3. a) Give the fixed end moment for the beam below 1) full UDL 2)centre point load
   b) Analyse the proped beam as shown in **Figure** below and draw BMD. Use Slope Deflection Method.



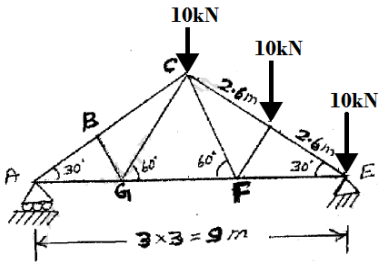
4. Analyse the beam as shown in **Figure** below and draw BMD. Use Slope Deflection Method.



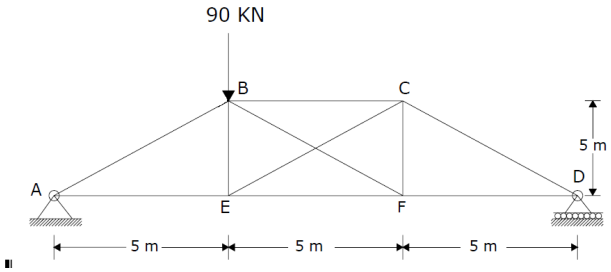
5. Analyse the beam as shown in **Figure** above (same of Q4) and draw BMD. Use Moment distrubution Method
6. Analyse the Portal frame as shown in **Figure below a**nd draw BMD. Use Moment distrubution Method



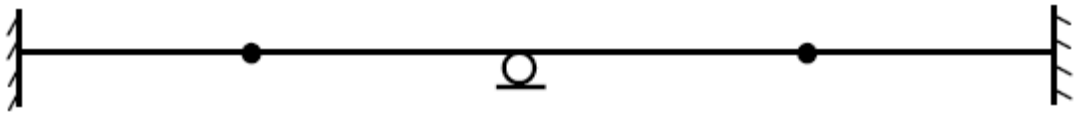
7. Analyse the truss by method of joints and indicate the member of forces with neat sketch

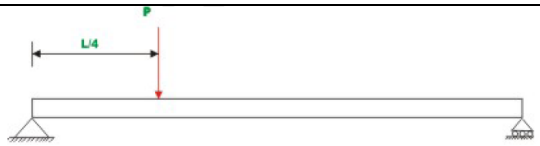


8. Analyse the truss by method of joints and indicate the member of forces with neat sketch



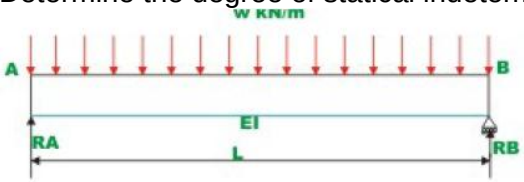
Model Questions Bank

Unit 1- INTRODUCTION STATIC AND KINEMATIC INDETERMINACY.
Cognitive level –Remember 2. State Conditions of equilibrium 3. Define redundancy 4. Define redundant force 5. What are all type of frames 6. Define degree of indeterminacy 7. What is equilibrium condition 8. What are the methods of structure to determining the degree of indeterminacy
Cognitive level –Understand 1. Mention the difference between Static indeterminacy and Kinematic indeterminacy 2. Differentiate determinate and indeterminate of structure 3. Differentiate static and kinematic indeterminacy of structure 4. Differentiate external and internal indeterminacy of structures
Cognitive level –Application 1. To find degree of indeterminacy of structures as given below  2. To find degree of indeterminacy of structures as given below  3. Check whether the following beam is statically determinate or not.

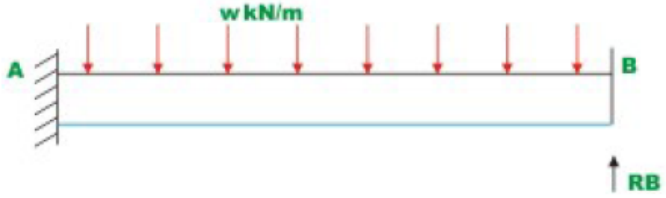


4. Check whether the following beam is statically determinate or not.

5. Determine the degree of statical indeterminacy



6. Determine the degree of statical indeterminacy



7. A four span continous beam has all simple supports.What is the static indeterminancy of the beam?

Unit 2-Slope deflection method

Cognitive level –Remember

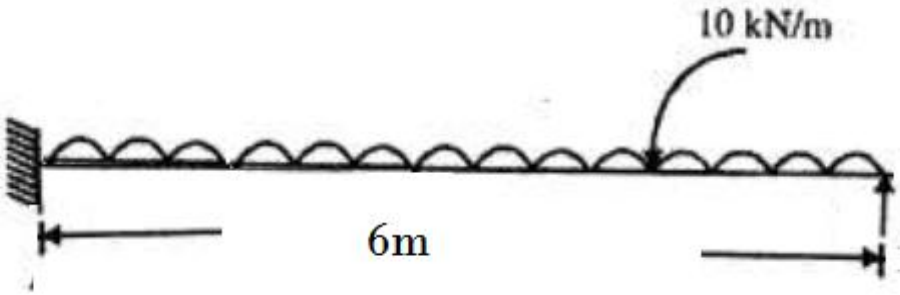
State the limitations of slope deflection method?
Write down the equilibrium equations used in slope deflection method?
What is the basic assumption made in slope deflection method?
Give the fixed end moment for the beam below a) full UDL b)centre point load c) 2 point load both l/3 distance from support
What is the moment at a hinged end of a simple beam?
Write down the slope deflection equation for fixed end support?
Write the general equations for finding out the moment in a beam AB by using slope deflection equation?
What are the quantities in terms of which the unknown moments are expressed in slope deflection method?
What is meant by distribution factor?
Who introduced slope-deflection method of analysis?
Define degree of freedom

Cognitive level –Understand

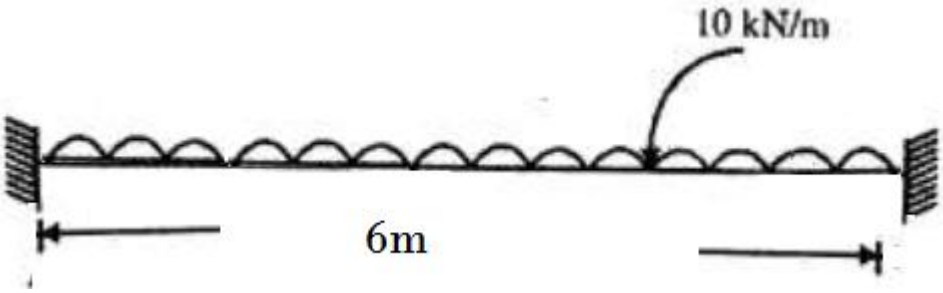
Say true or false and if false, justify your answer “slope deflection method is a force method”?
What are the reasons for sway in portal frames?
What are the sign conventions used in slope deflection method?
Why slope-deflection method is called a displacement method?
Mention any three reasons due to which sway may occur in portal frames?
Write the fixed end moments for a beam carrying a central clockwise moment?
What is the basis on which the sway equation is formed for a structure?
How many slope-deflection equations are available for each span?
What is the moment at a hinged end of a simple beam?
.

Cognitive level –Application

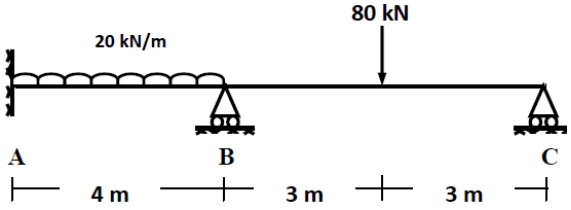
4. Analyse the Proped beam as shown in **Figure** below and draw BMD. Use Slope Deflection Method.



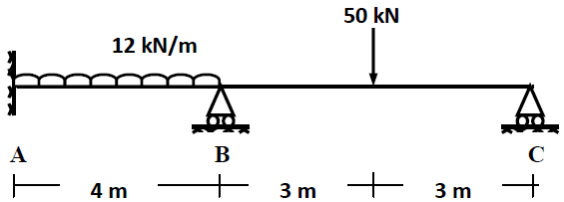
5. Analyse the Fixed beam as shown in **Figure** below and draw BMD. Use Slope Deflection Method.



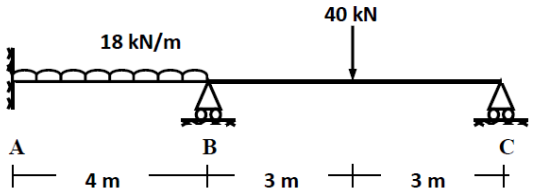
6. Analyse the beam as shown in **Figure** below and draw BMD. Use Slope Deflection Method.



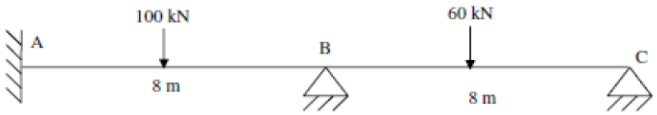
7. Analyse the beam as shown in **Figure** below and draw BMD. Use Slope Deflection Method.



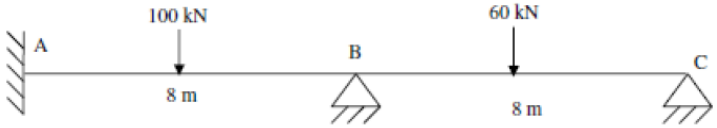
8. Analyse the beam as shown in **Figure** below and draw BMD. Use Slope Deflection Method.



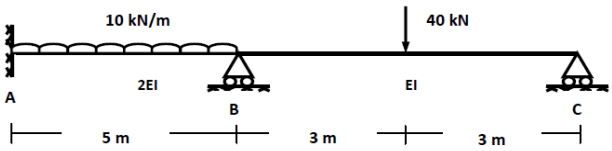
9. Analyse the beam as shown in **Figure** below and draw BMD. Use Slope Deflection Method.



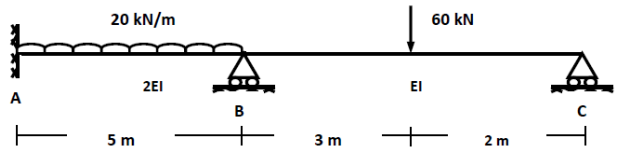
10. Analyse the beam as shown in **Figure** below and draw BMD. Use Slope Deflection Method.



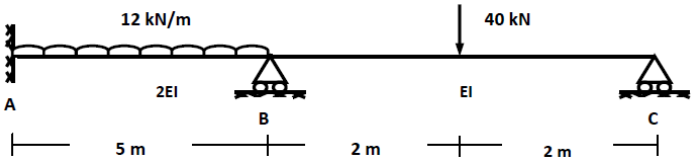
11. Analyse the beam as shown in **Figure** below and draw BMD. Use Slope Deflection Method.



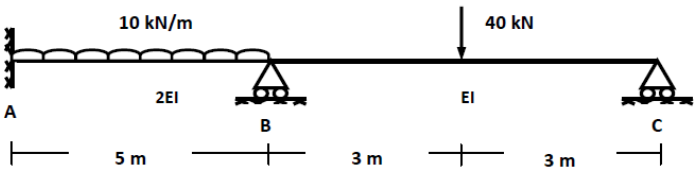
12. Analyse the beam as shown in **Figure** below and draw BMD. Use Slope Deflection Method.



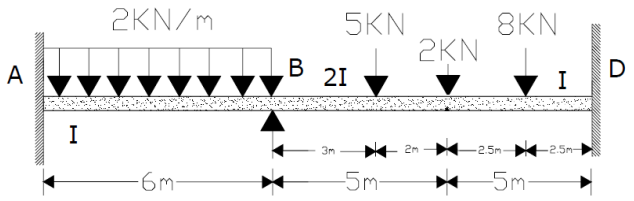
13. Analyse the beam as shown in **Figure** below and draw BMD. Use Slope Deflection Method.



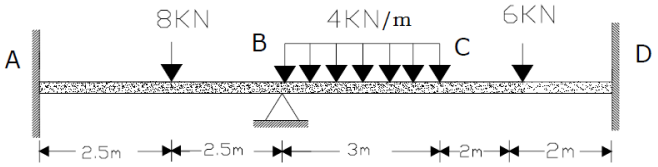
14. Analyse the beam as shown in **Figure** below and draw BMD. Use Slope Deflection Method.



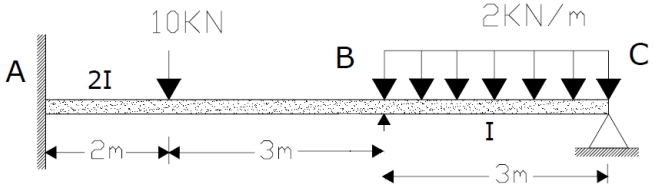
15. Analyse the beam as shown in **Figure** below and draw BMD. Use Slope Deflection Method.



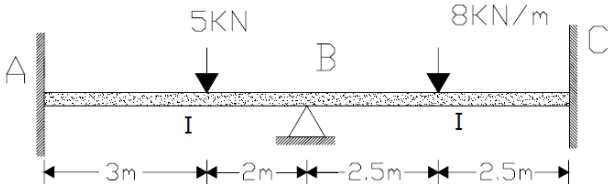
16. Analyse the beam as shown in **Figure** below and draw BMD. Use Slope Deflection Method.



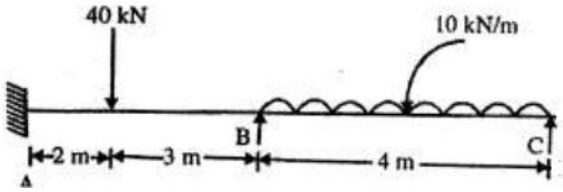
17. Analyse the beam as shown in **Figure** below and draw BMD. Use Slope Deflection Method.



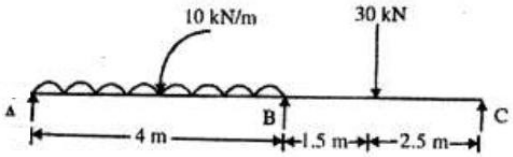
18. Analyse the beam as shown in **Figure** below and draw BMD. Use Slope Deflection Method.



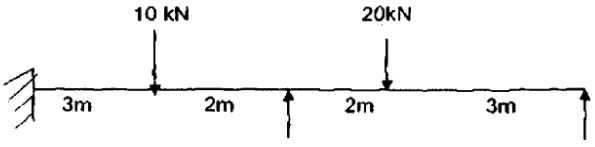
19. Analyse the beam as shown in **Figure** below and draw BMD. Use Slope Deflection Method.



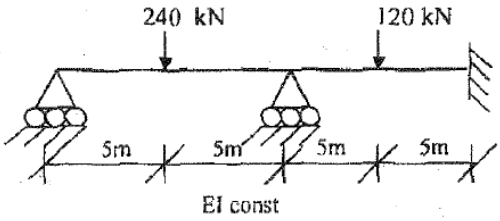
20. Analyse the beam as shown in **Figure** below and draw BMD. Use Slope Deflection Method.



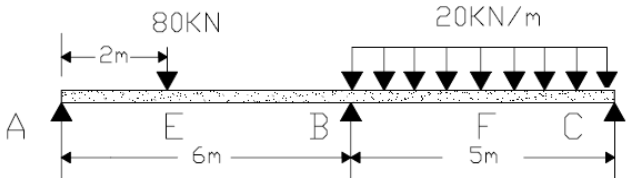
21. Analyse the beam as shown in **Figure** below and draw BMD. Use Slope Deflection Method.



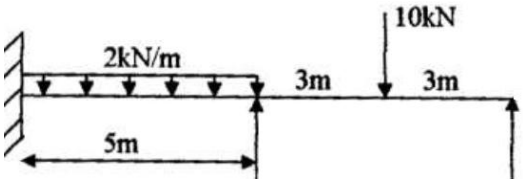
22. Analyse the beam as shown in **Figure** below and draw BMD. Use Slope Deflection Method.



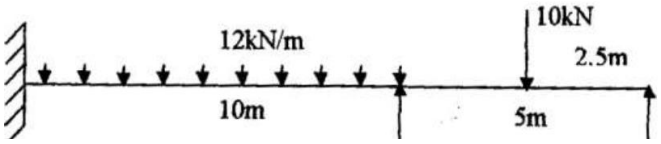
23. Analyse the beam as shown in **Figure** below and draw BMD. Use Slope Deflection Method.



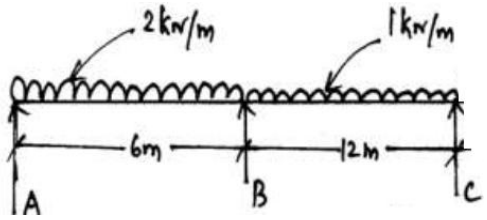
24. Analyse the beam as shown in **Figure** below and draw BMD. Use Slope Deflection Method.



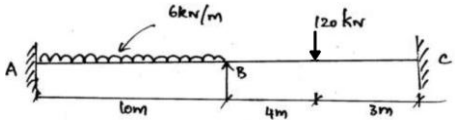
25. Analyse the beam as shown in **Figure** below and draw BMD. Use Slope Deflection Method.



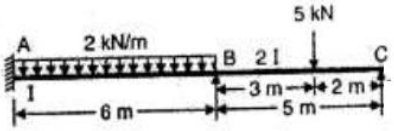
26. Analyse the beam as shown in **Figure** below and draw BMD. Use Slope Deflection Method.



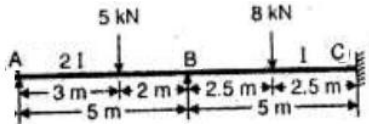
27. Analyse the beam as shown in **Figure** below and draw BMD. Use Slope Deflection Method.



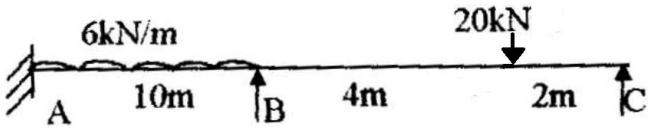
28. Analyse the beam as shown in **Figure** below and draw BMD. Use Slope Deflection Method.



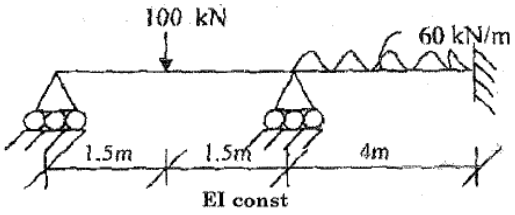
29. Analyse the beam as shown in **Figure** below and draw BMD. Use Slope Deflection Method.



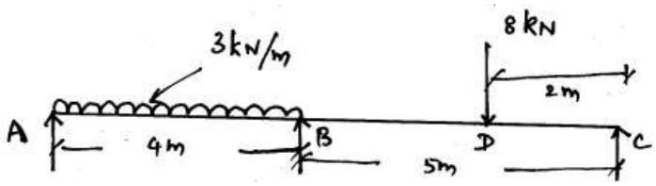
30. Analyse the beam as shown in **Figure** below and draw BMD. Use Slope Deflection Method.



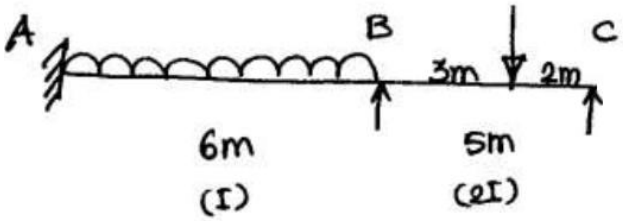
31. Analyse the beam as shown in **Figure** below and draw BMD. Use Slope Deflection Method.



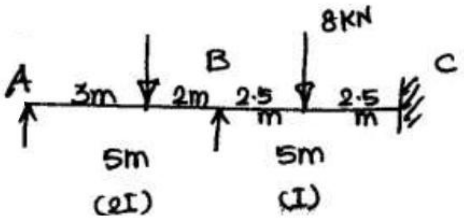
32. Analyse the beam as shown in **Figure** below and draw BMD. Use Slope Deflection Method.



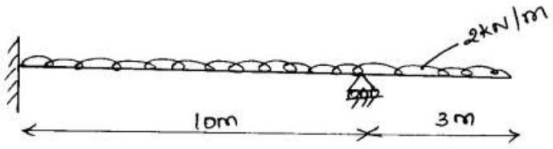
33. Analyse the beam as shown in **Figure** below and draw BMD. Use Slope Deflection Method.



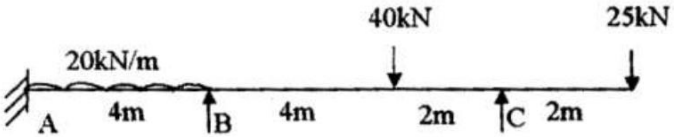
34. Analyse the beam as shown in **Figure** below and draw BMD. Use Slope Deflection Method.



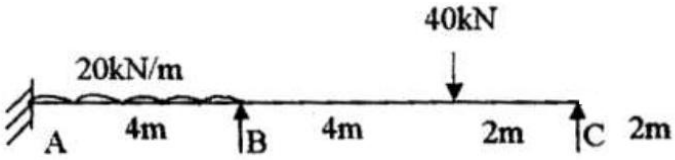
35. Analyse the beam as shown in **Figure** below and draw BMD. Use Slope Deflection Method.



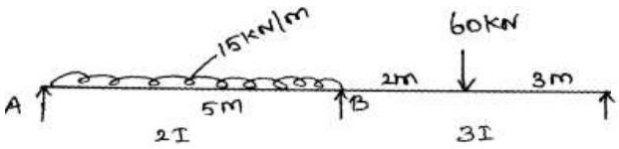
36. Analyse the beam as shown in **Figure** below and draw BMD. Use Slope Deflection Method.



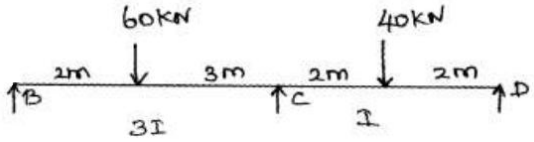
37. Analyse the beam as shown in **Figure** below and draw BMD. Use Slope Deflection Method.



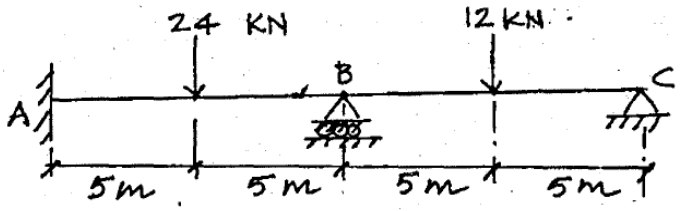
38. Analyse the beam as shown in **Figure** below and draw BMD. Use Slope Deflection Method.



39. Analyse the beam as shown in **Figure** below and draw BMD. Use Slope Deflection Method.

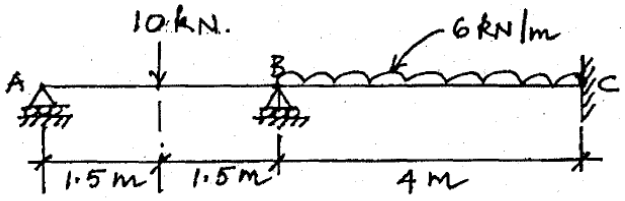


40. Analyse the beam as shown in **Figure** below and draw BMD. Use Slope Deflection Method.



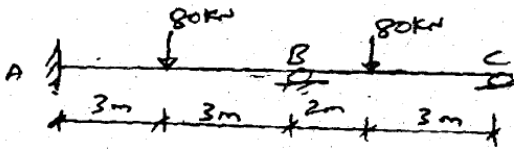
EI = Constant

41. Analyse the beam as shown in **Figure** below and draw BMD. Use Slope Deflection Method.

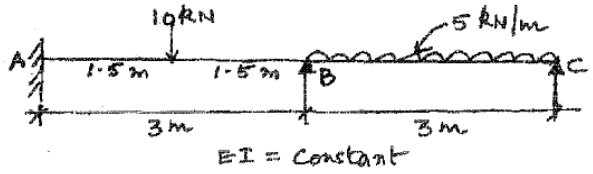


EI = Constant

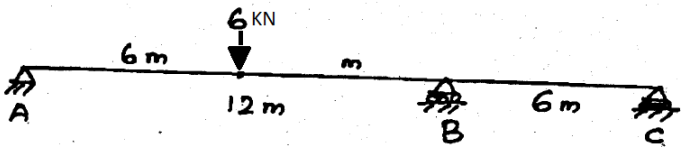
42. Analyse the beam as shown in **Figure** below and draw BMD. Use Slope Deflection Method.



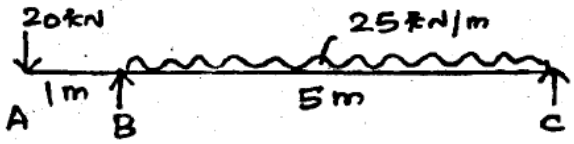
43. Analyse the beam as shown in **Figure** below and draw BMD. Use Slope Deflection Method.



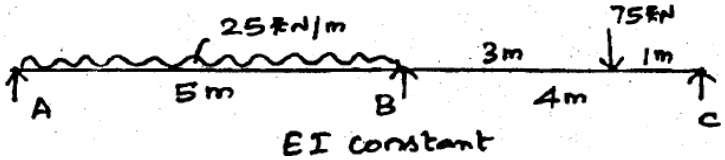
44. Analyse the beam as shown in **Figure** below and draw BMD. Use Slope Deflection Method.



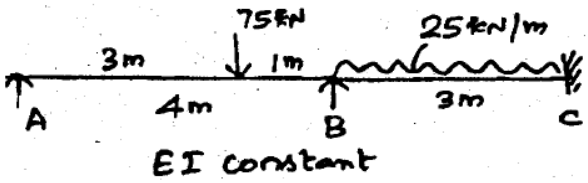
45. Analyse the beam as shown in **Figure** below and draw BMD. Use Slope Deflection Method.



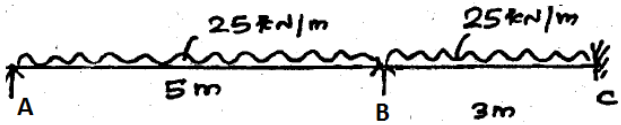
46. Analyse the beam as shown in **Figure** below and draw BMD. Use Slope Deflection Method.



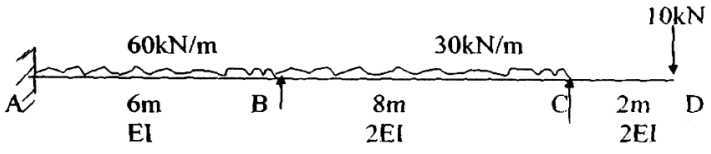
47. Analyse the beam as shown in **Figure** below and draw BMD. Use Slope Deflection Method.



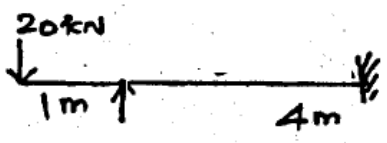
48. Analyse the beam as shown in **Figure** below and draw BMD. Use Slope Deflection Method.



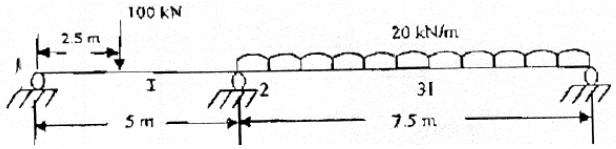
49. Analyse the beam as shown in **Figure** below and draw BMD. Use Slope Deflection Method.



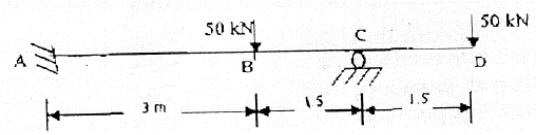
50. Analyse the beam as shown in **Figure** below and draw BMD. Use Slope Deflection Method.



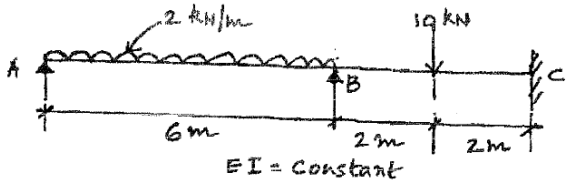
51. Analyse the beam as shown in **Figure** below and draw BMD. Use Slope Deflection Method.



52. Analyse the beam as shown in **Figure** below and draw BMD. Use Slope Deflection Method.

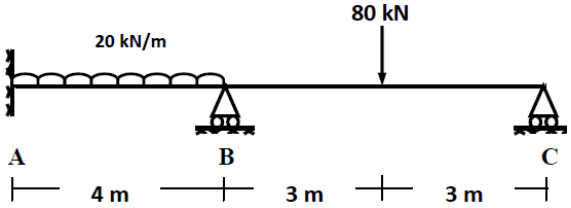


53. Analyse the beam as shown in **Figure** below and draw BMD. Use Slope Deflection Method.

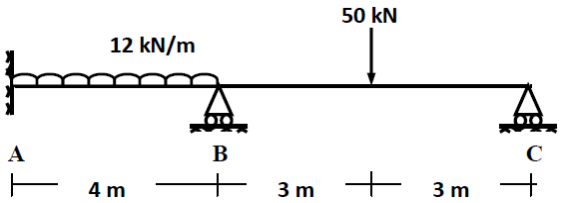


Unit 3- Moment Distribution Method.
Cognitive level –Remember 1. Explain carry over factor and distribution factor. 2. Define: Continuous beam? 3. Define Stiffness? 4. Define: Moment distribution method (Hardy Cross method) 5. Define: Distribution factor 6. Define: Stiffness factor 7. Define: Flexural Rigidity of Beams 8. Define sway 9. What is carry over moment?
Cognitive level –Understand 1. What are the advantages of continuous beams over simply supported beams? 2. State how the redundancy of a rigid frame is calculated? 3. Explain carry over factor and distribution factor? 4. Give the relative stiffness when the far end is (a) Simply supported and (b) Fixed. 5. What are the situations where in sway will occur in portal frames? 6. Find the distribution factor for the given beam? 7. What is the sum of distribution factors at a joint? **8.** Write the distribution factor for a given beam?
Cognitive level –Application

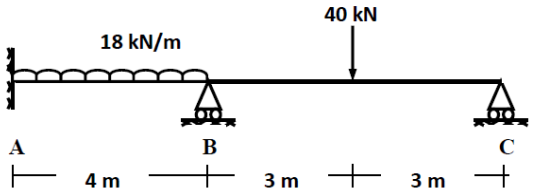
1. Analyse the beam as shown in **Figure** below and draw BMD. Use Moment Distribution Method.



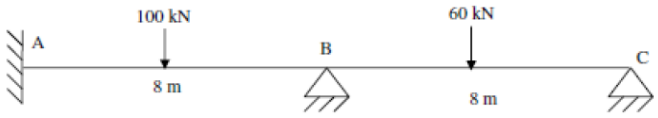
2. Analyse the beam as shown in **Figure** below and draw BMD. Use Moment Distribution Method.



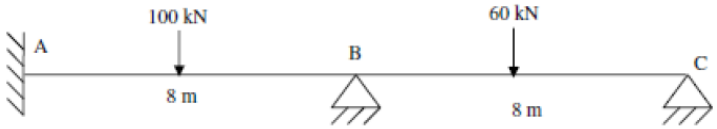
3. Analyse the beam as shown in **Figure** below and draw BMD. Use Moment Distribution Method.



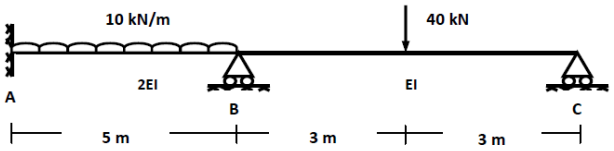
4. Analyse the beam as shown in **Figure** below and draw BMD. Use Moment Distribution Method.



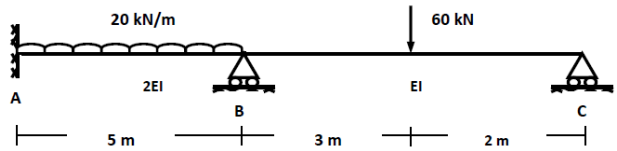
5. Analyse the beam as shown in **Figure** below and draw BMD. Use Moment Distribution Method.



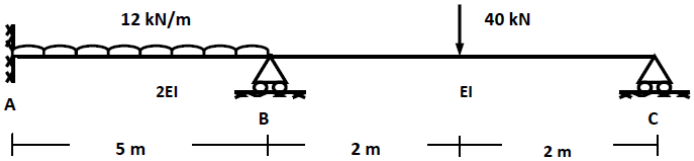
6. Analyse the beam as shown in **Figure** below and draw BMD. Use Moment Distribution Method.



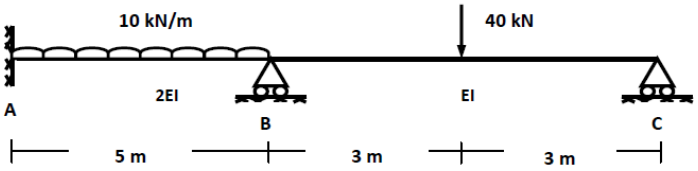
7. Analyse the beam as shown in **Figure** below and draw BMD. Use Moment Distribution Method.



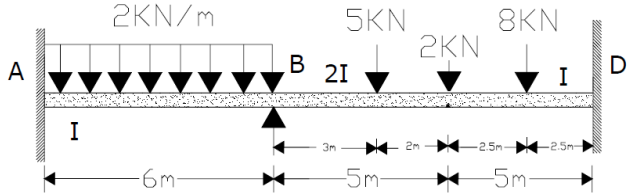
8. Analyse the beam as shown in **Figure** below and draw BMD. Use Moment Distribution Method.



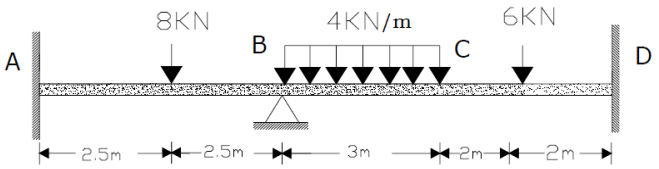
9. Analyse the beam as shown in **Figure** below and draw BMD. Use Moment Distribution Method.



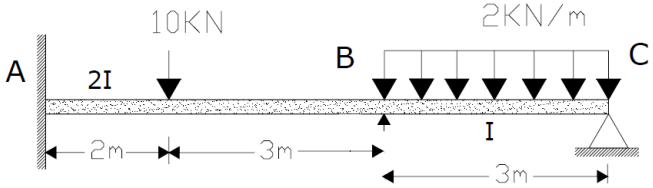
10. Analyse the beam as shown in **Figure** below and draw BMD. Use Moment Distribution Method.



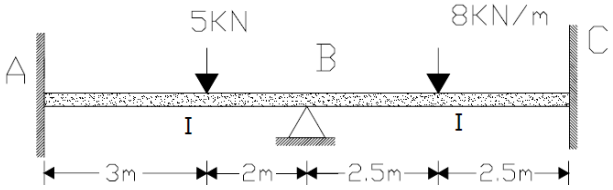
11. Analyse the beam as shown in **Figure** below and draw BMD. Use Moment Distribution Method.



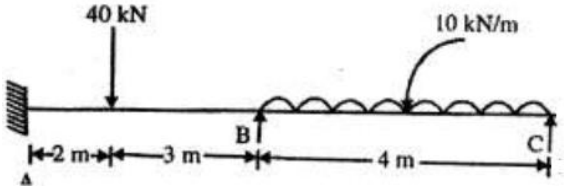
12. Analyse the beam as shown in **Figure** below and draw BMD. Use Moment Distribution Method.



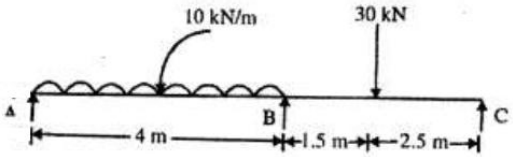
13. Analyse the beam as shown in **Figure** below and draw BMD. Use Moment Distribution Method.



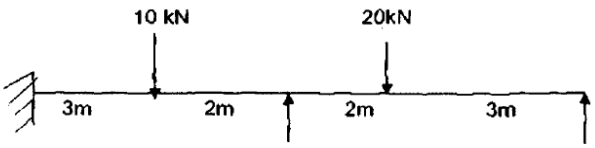
14. Analyse the beam as shown in **Figure** below and draw BMD. Use Moment Distribution Method.



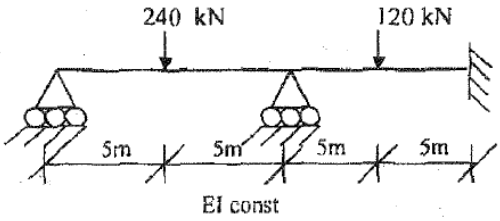
15. Analyse the beam as shown in **Figure** below and draw BMD. Use Moment Distribution Method.



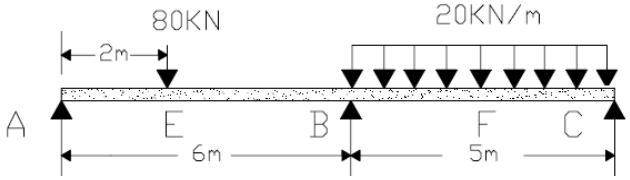
16. Analyse the beam as shown in **Figure** below and draw BMD. Use Moment Distribution Method.



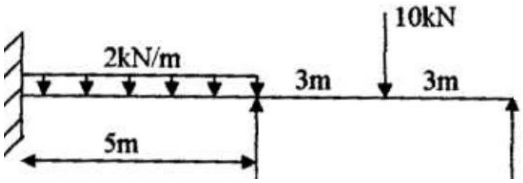
17. Analyse the beam as shown in **Figure** below and draw BMD. Use Moment Distribution Method.



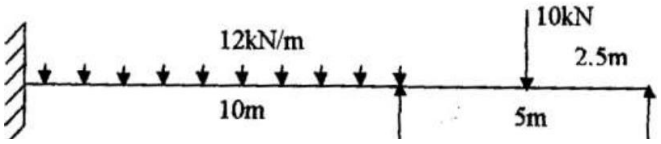
18. Analyse the beam as shown in **Figure** below and draw BMD. Use Moment Distribution Method.



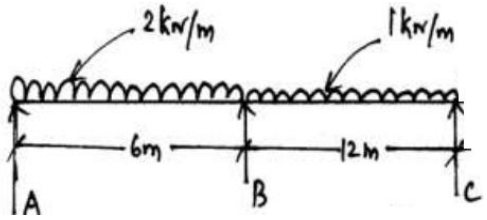
19. Analyse the beam as shown in **Figure** below and draw BMD. Use Moment Distribution Method.



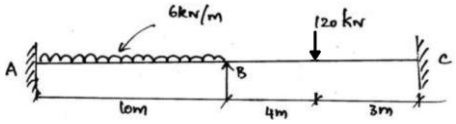
20. Analyse the beam as shown in **Figure** below and draw BMD. Use Moment Distribution Method.



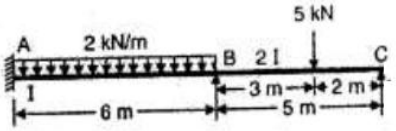
21. Analyse the beam as shown in **Figure** below and draw BMD. Use Moment Distribution Method.



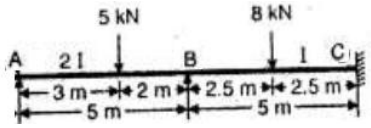
22. Analyse the beam as shown in **Figure** below and draw BMD. Use Moment Distribution Method.



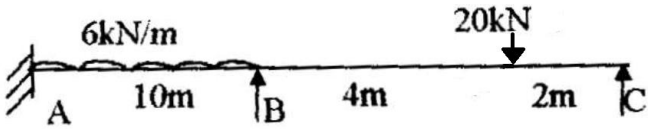
23. Analyse the beam as shown in **Figure** below and draw BMD. Use Moment Distribution Method.



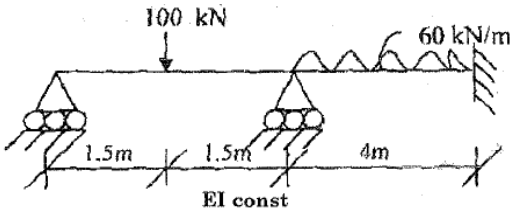
24. Analyse the beam as shown in **Figure** below and draw BMD. Use Moment Distribution Method.



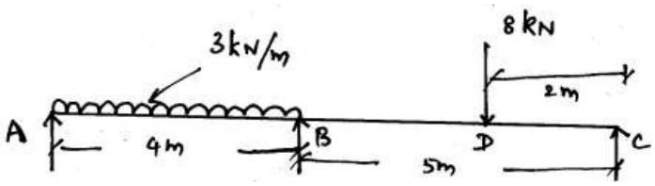
25. Analyse the beam as shown in **Figure** below and draw BMD. Use Moment Distribution Method.



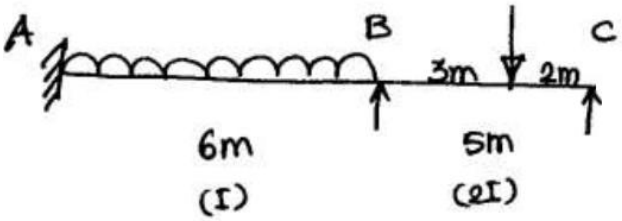
26. Analyse the beam as shown in **Figure** below and draw BMD. Use Moment Distribution Method.



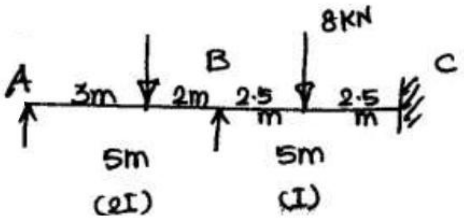
27. Analyse the beam as shown in **Figure** below and draw BMD. Use Moment Distribution Method.



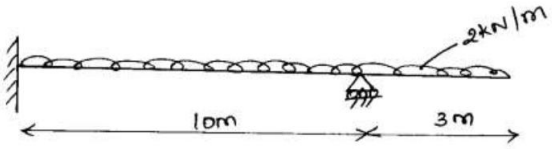
28. Analyse the beam as shown in **Figure** below and draw BMD. Use Moment Distribution Method.



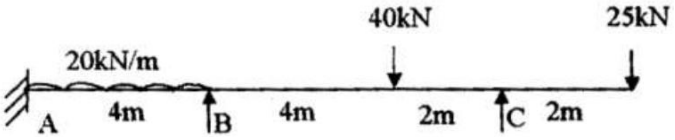
29. Analyse the beam as shown in **Figure** below and draw BMD. Use Moment Distribution Method.



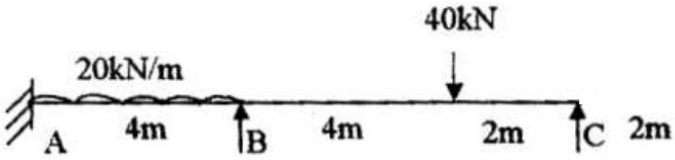
30. Analyse the beam as shown in **Figure** below and draw BMD. Use Moment Distribution Method.



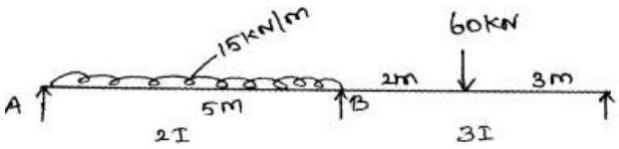
31. Analyse the beam as shown in **Figure** below and draw BMD. Use Moment Distribution Method.



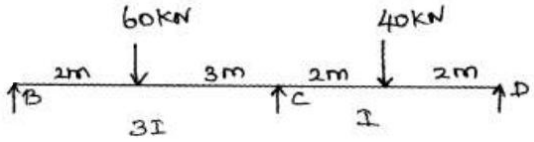
32. Analyse the beam as shown in **Figure** below and draw BMD. Use Moment Distribution Method.



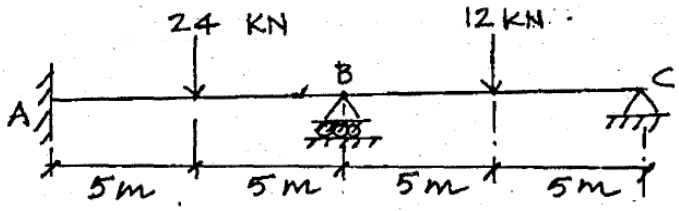
33. Analyse the beam as shown in **Figure** below and draw BMD. Use Moment Distribution Method.



34. Analyse the beam as shown in **Figure** below and draw BMD. Use Moment Distribution Method.

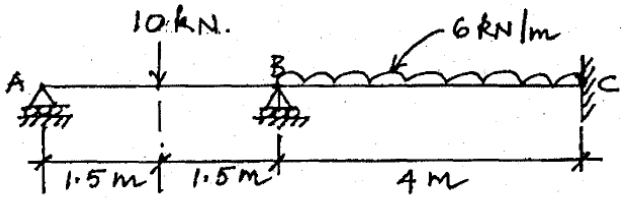


35. Analyse the beam as shown in **Figure** below and draw BMD. Use Moment Distribution Method.



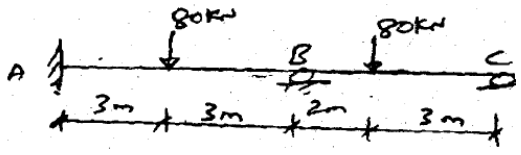
EI = Constant

36. Analyse the beam as shown in **Figure** below and draw BMD. Use Moment Distribution Method.

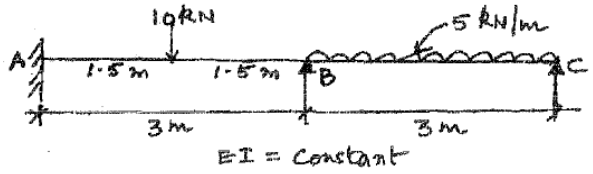


EI = Constant

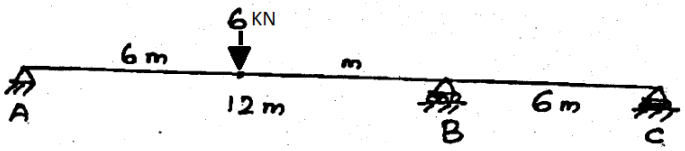
37. Analyse the beam as shown in **Figure** below and draw BMD. Use Moment Distribution Method.



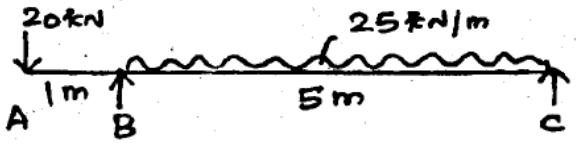
38. Analyse the beam as shown in **Figure** below and draw BMD. Use Moment Distribution Method.



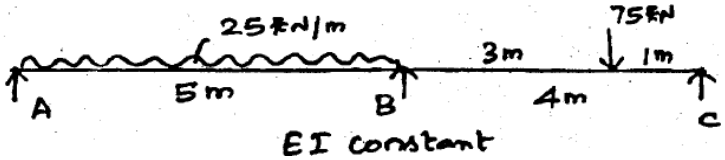
39. Analyse the beam as shown in **Figure** below and draw BMD. Use Moment Distribution Method.



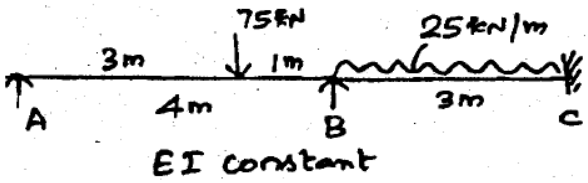
40. Analyse the beam as shown in **Figure** below and draw BMD. Use Moment Distribution Method.



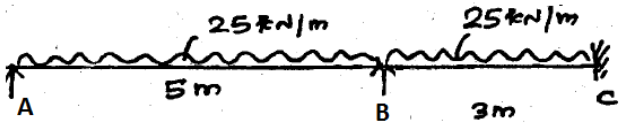
41. Analyse the beam as shown in **Figure** below and draw BMD. Use Moment Distribution Method.



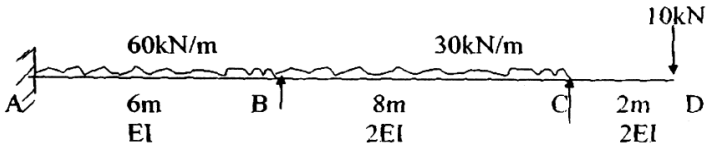
42. Analyse the beam as shown in **Figure** below and draw BMD. Use Moment Distribution Method.



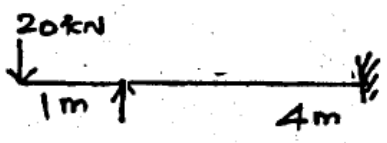
43. Analyse the beam as shown in **Figure** below and draw BMD. Use Moment Distribution Method.



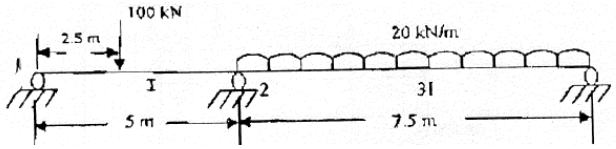
44. Analyse the beam as shown in **Figure** below and draw BMD. Use Moment Distribution Method.



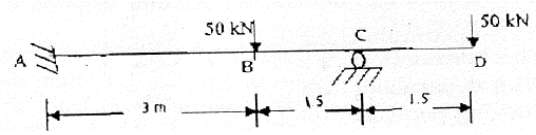
45. Analyse the beam as shown in **Figure** below and draw BMD. Use Moment Distribution Method.



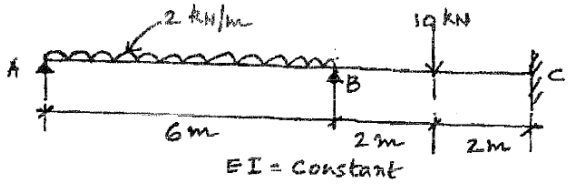
46. Analyse the beam as shown in **Figure** below and draw BMD. Use Moment Distribution Method.



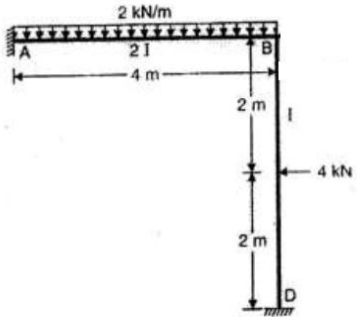
47. Analyse the beam as shown in **Figure** below and draw BMD. Use Moment Distribution Method.



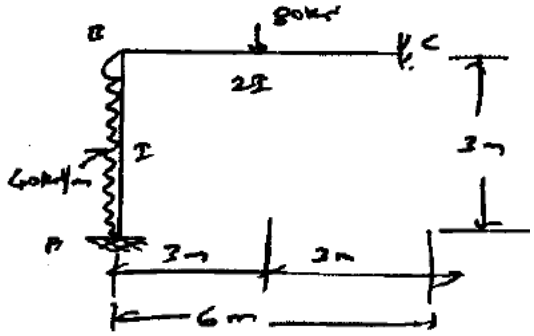
48. Analyse the beam as shown in **Figure** below and draw BMD. Use Moment Distribution Method.



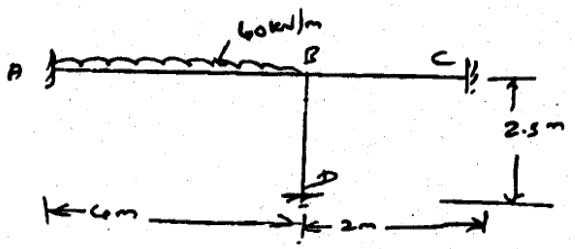
1. Analyse the frame (single bay single column) shown in fig. by moment distribution method & draw the SFD & BMD.



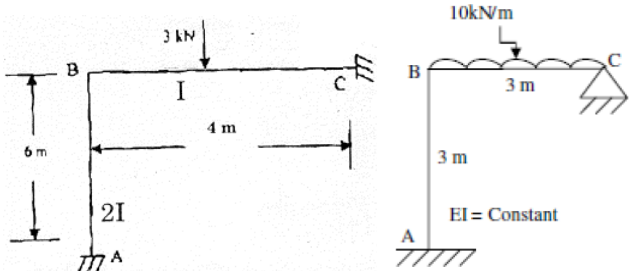
2. Analyse the frame (single bay single column) shown in fig. by moment distribution method & draw the SFD & BMD.



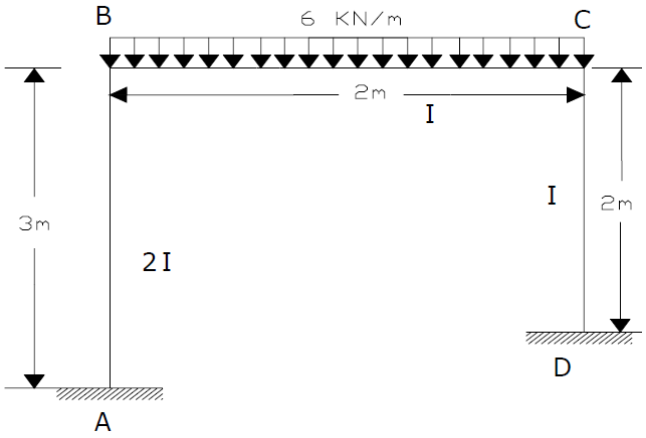
3. Analyse the frame (single bay single column) shown in fig. by moment distribution method & draw the SFD & BMD.



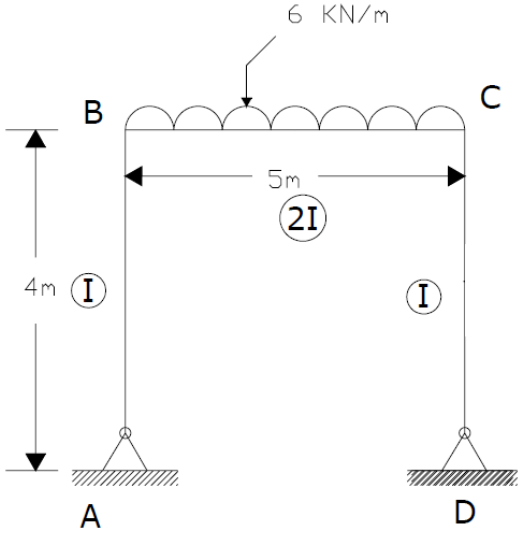
4. Analyse the frame (single bay single column) shown in fig. by moment distribution method & draw the SFD & BMD.



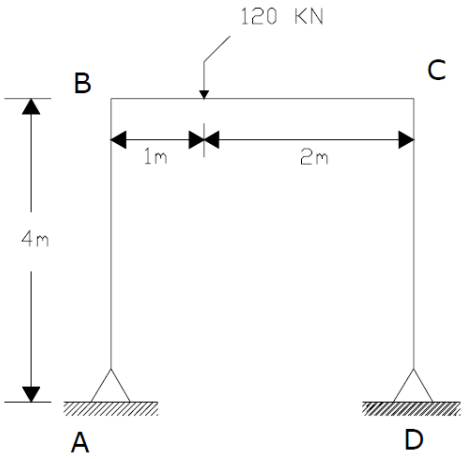
5. Analyse the frame (single bay 2 column) shown in fig. by moment distribution method & draw the SFD & BMD



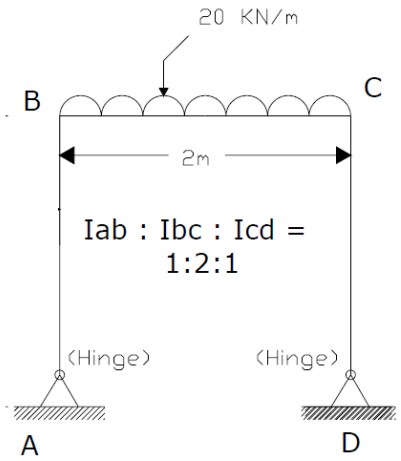
6. Analyse the frame (single bay 2 column) shown in fig. by moment distribution method & draw the SFD & BMD



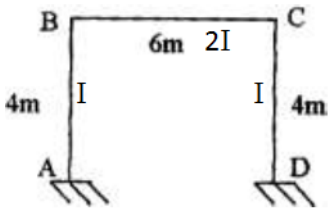
7. Analyse the frame (single bay 2 column) shown in fig. by moment distribution method & draw the SFD & BMD



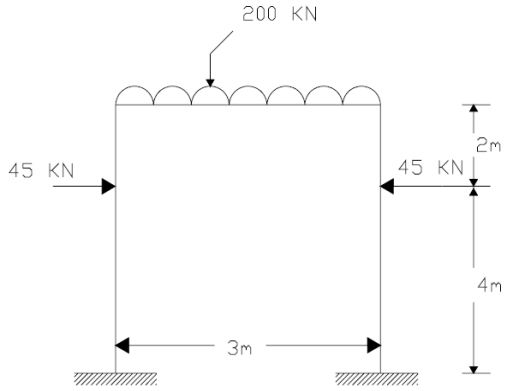
8. Analyse the frame (single bay 2 column) shown in fig. by moment distribution method & draw the SFD & BMD



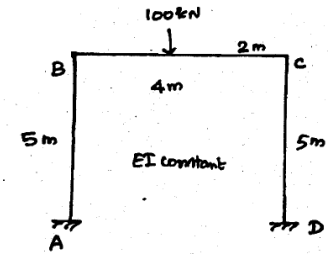
9. Analyse the frame (single bay 2 column) shown in fig. by moment distribution method & draw the SFD & BMD



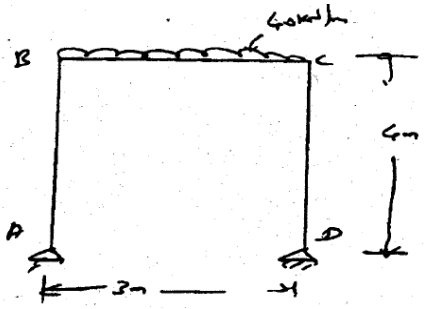
10. Analyse the frame (single bay 2 column) shown in fig. by moment distribution method & draw the SFD & BMD



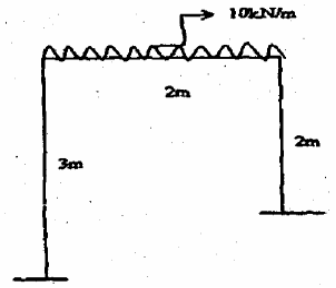
11. Analyse the frame (single bay 2 column) shown in fig. by moment distribution method & draw the SFD & BMD



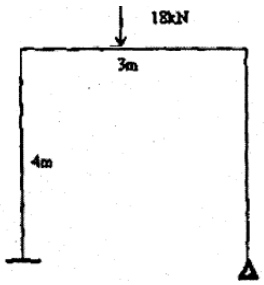
12. Analyse the frame (single bay 2 column) shown in fig. by moment distribution method & draw the SFD & BMD



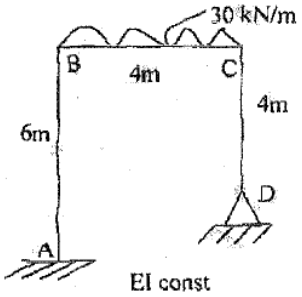
13. Analyse the frame (single bay 2 column) shown in fig. by moment distribution method & draw the SFD & BMD



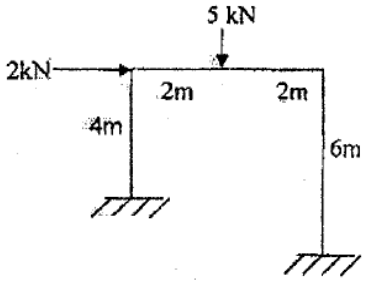
14. Analyse the frame (single bay 2 column) shown in fig. by moment distribution method & draw the SFD & BMD



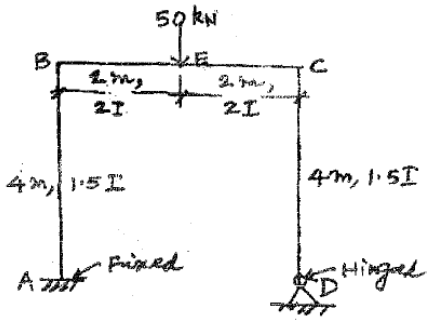
15. Analyse the frame (single bay 2 column) shown in fig. by moment distribution method & draw the SFD & BMD



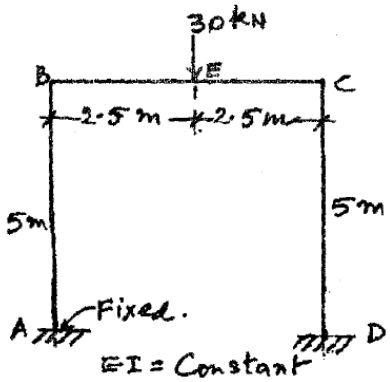
16. Analyse the frame (single bay 2 column) shown in fig. by moment distribution method & draw the SFD & BMD



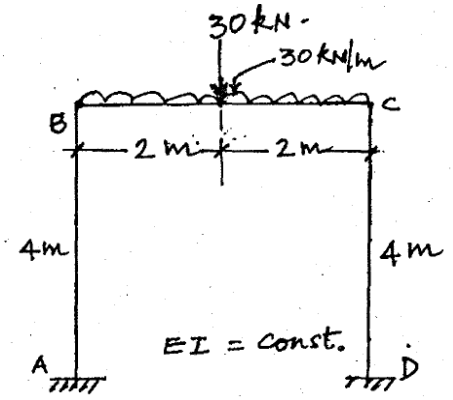
17. Analyse the frame (single bay 2 column) shown in fig. by moment distribution method & draw the SFD & BMD



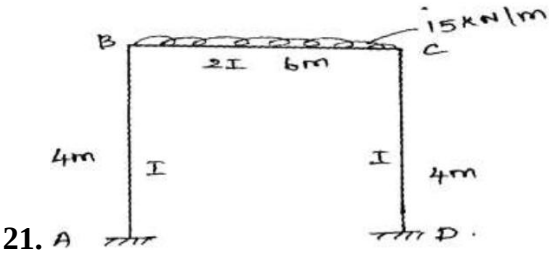
18. Analyse the frame (single bay 2 column) shown in fig. by moment distribution method & draw the SFD & BMD



19. Analyse the frame (single bay 2 column) shown in fig. by moment distribution method & draw the SFD & BMD

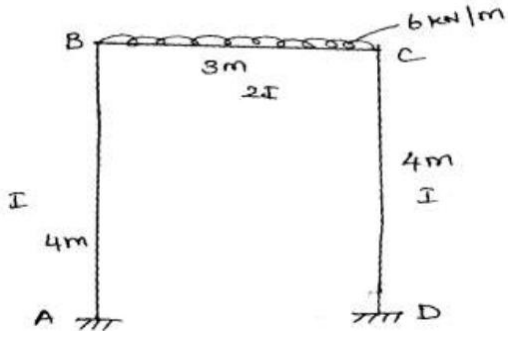


20. Analyse the frame (single bay 2 column) shown in fig. by moment distribution method & draw the SFD & BMD

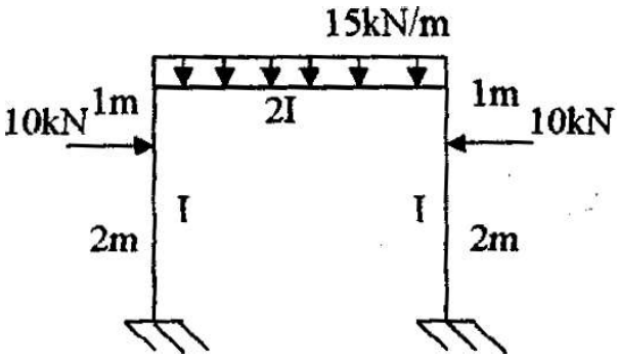


21.

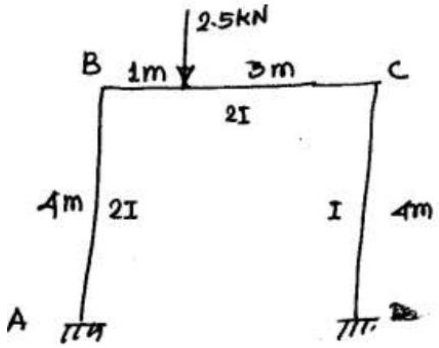
22. Analyse the frame (single bay 2 column) shown in fig. by moment distribution method & draw the SFD & BMD



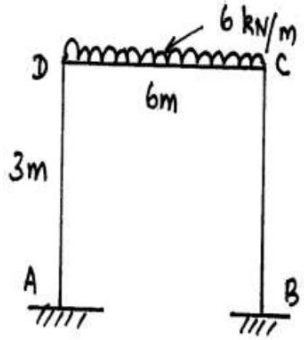
23. Analyse the frame (single bay 2 column) shown in fig. by moment distribution method & draw the SFD & BMD



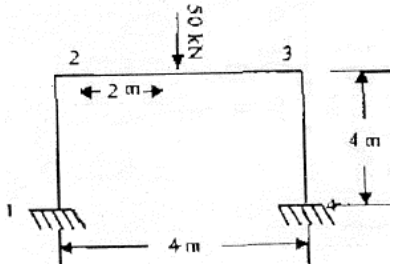
24. Analyse the frame (single bay 2 column) shown in fig. by moment distribution method & draw the SFD & BMD



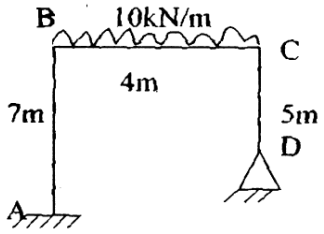
25. Analyse the frame (single bay 2 column) shown in fig. by moment distribution method & draw the SFD & BMD

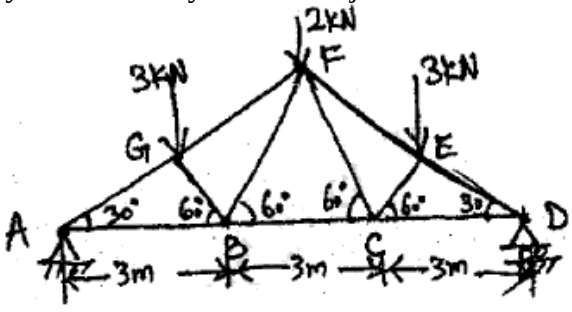
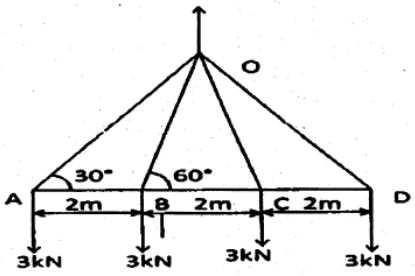
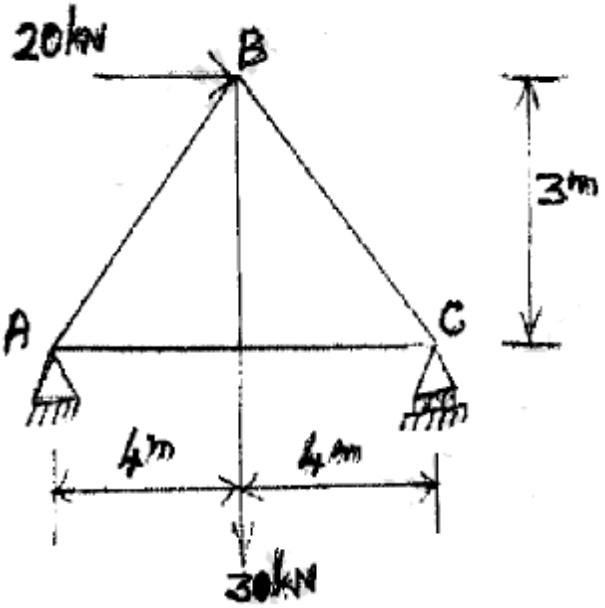


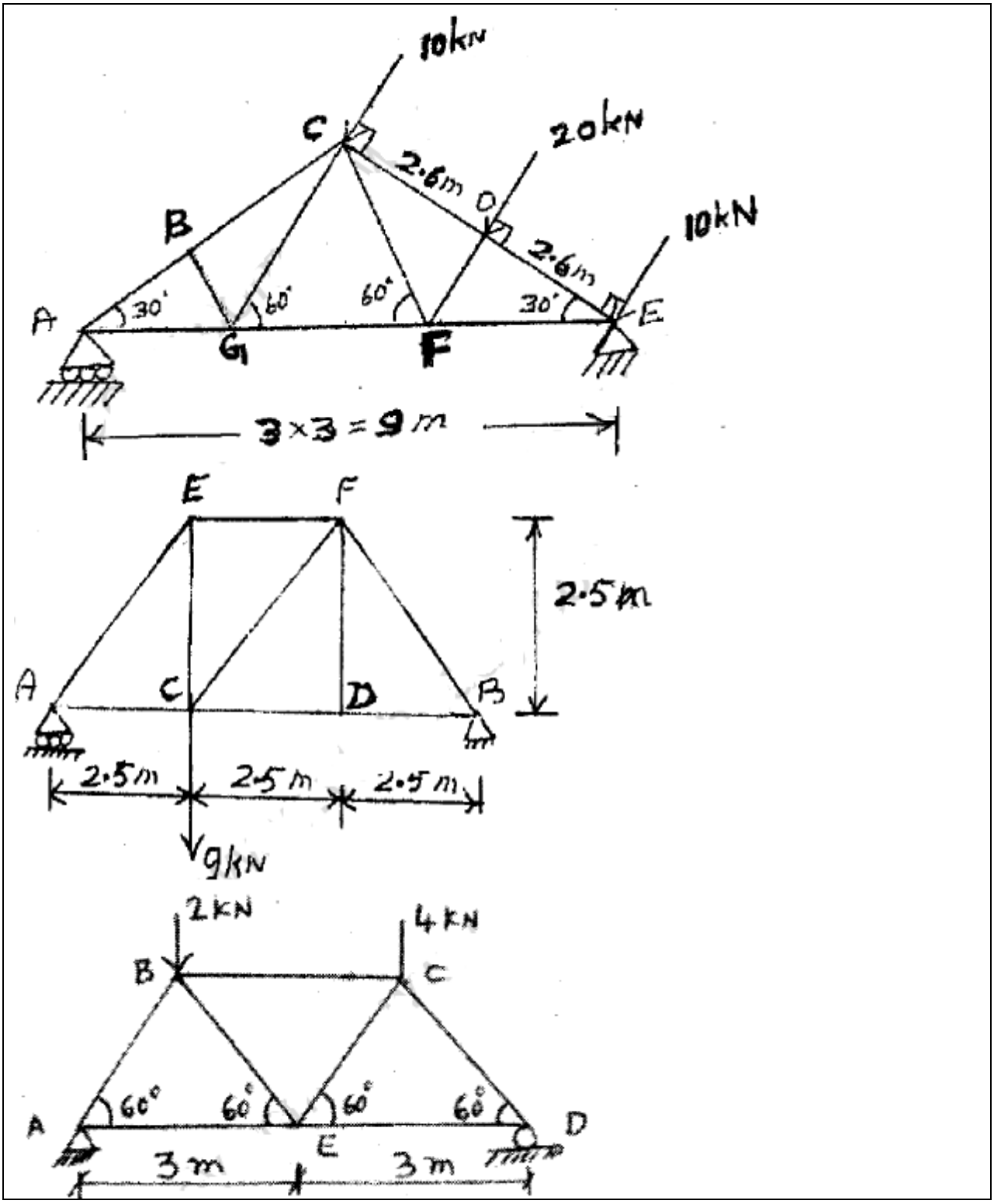
26. Analyse the frame (single bay 2 column) shown in fig. by moment distribution method & draw the SFD & BMD

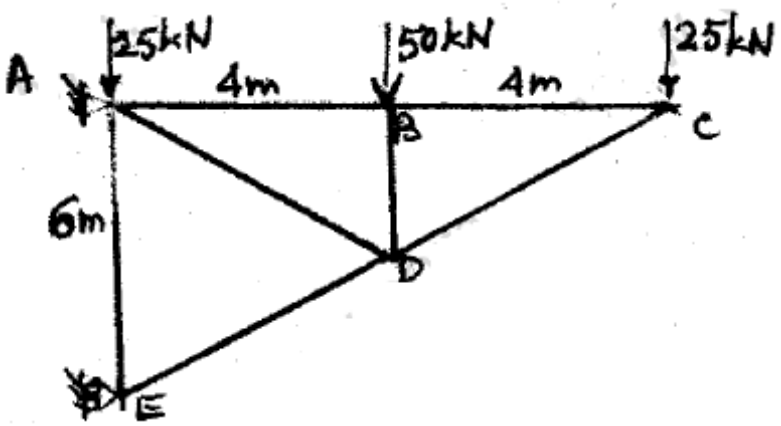


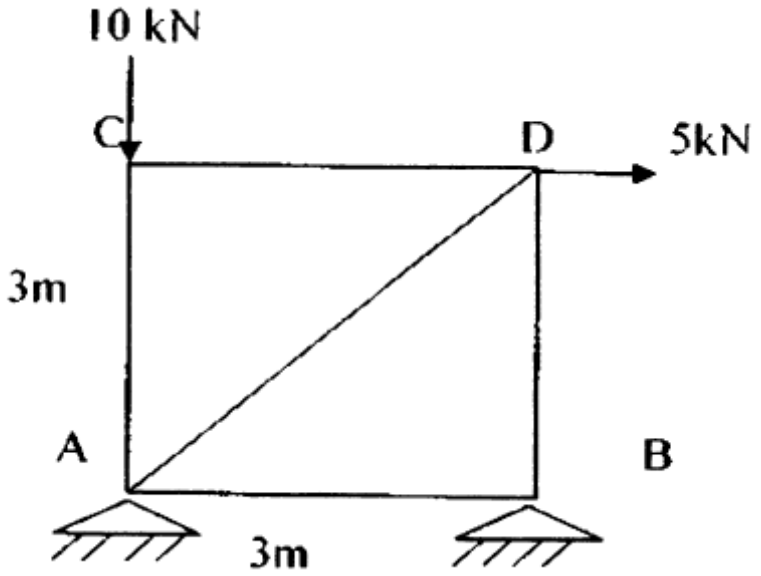
27. Analyse the frame (single bay 2 column) shown in fig. by moment distribution method & draw the SFD & BMD

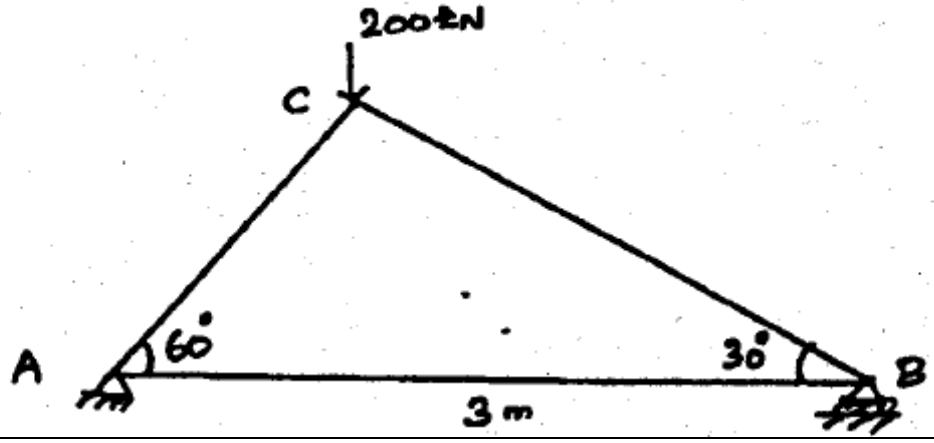


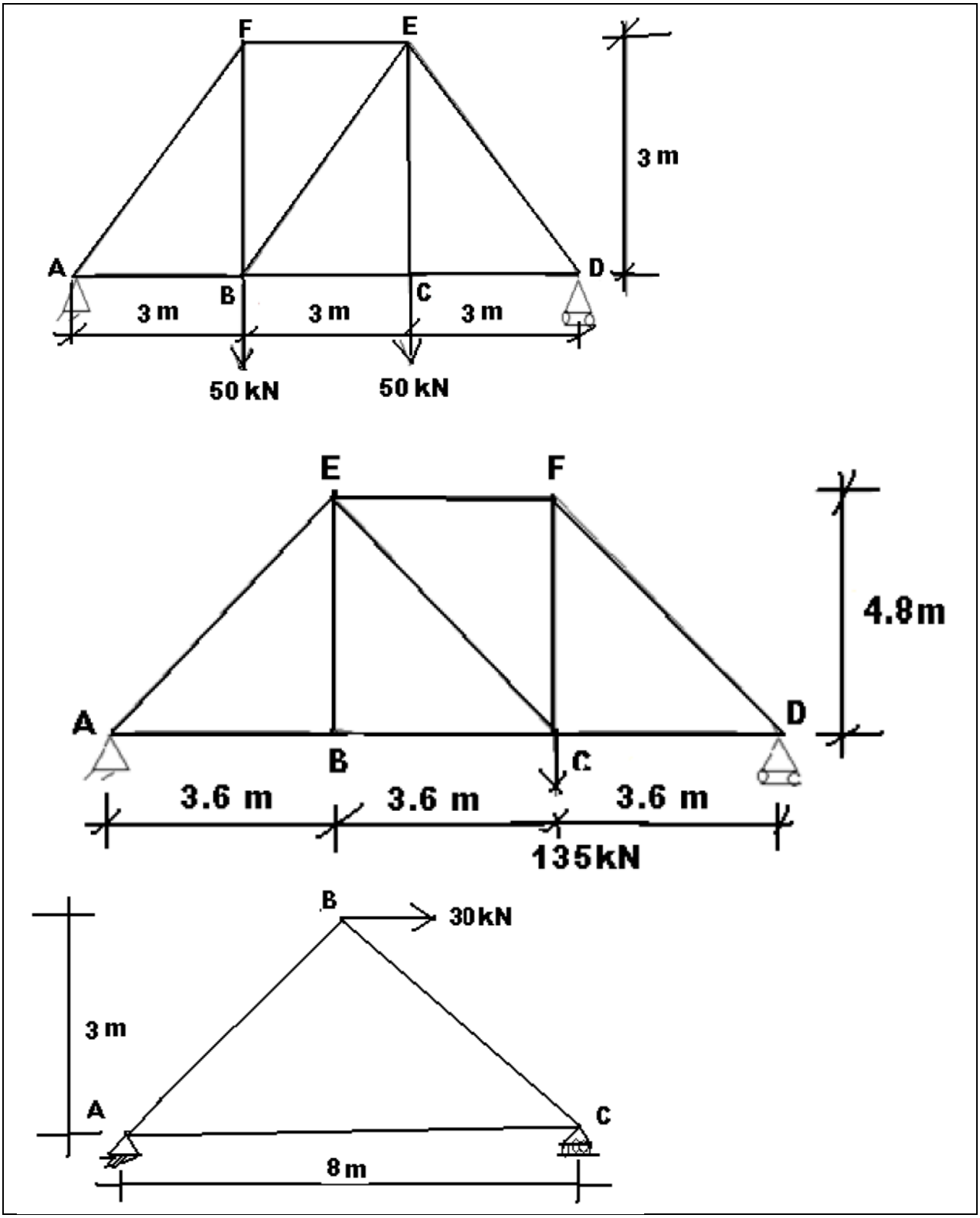
Unit 4
Cognitive level –Remember **Mention the types of truss**
Cognitive level –Understand 1. Write the assumption made in the pin jointed plane truss
Cognitive level –Application Analyse the truss by method of joints and indicate the member of forces with neat sketch       

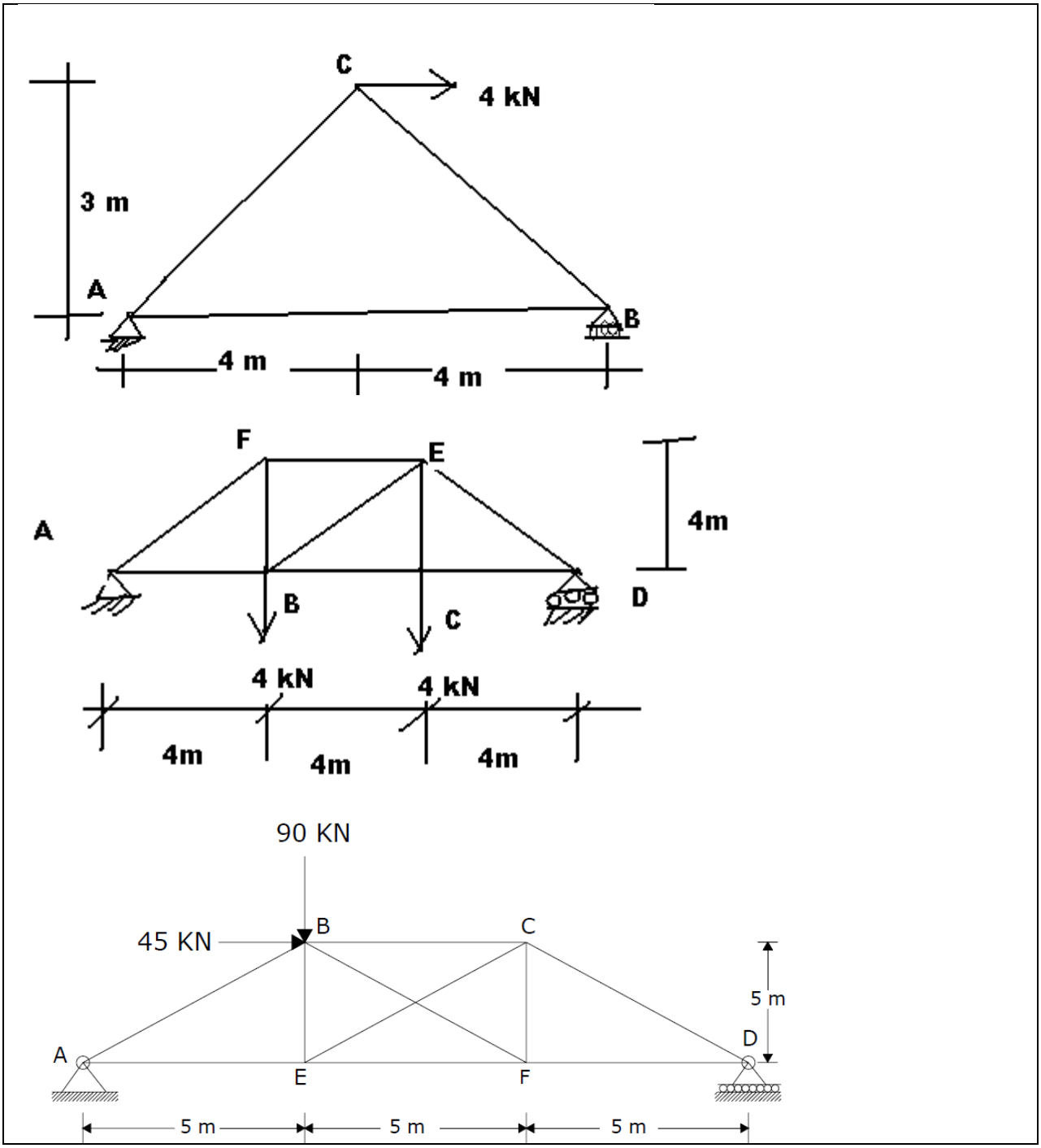

10kN
C
20kN
2.6m
D
10kN
B
2.6m
A
30°
60°
60°
30°
E
G
F
3×3 = 9 m
E
F
2.5m
A
C
D
B
2.5m
2.5m
2.5m
g kN
2kN
4kN
B
C
A
60°
60°
60°
60°
D
E
3m
3m

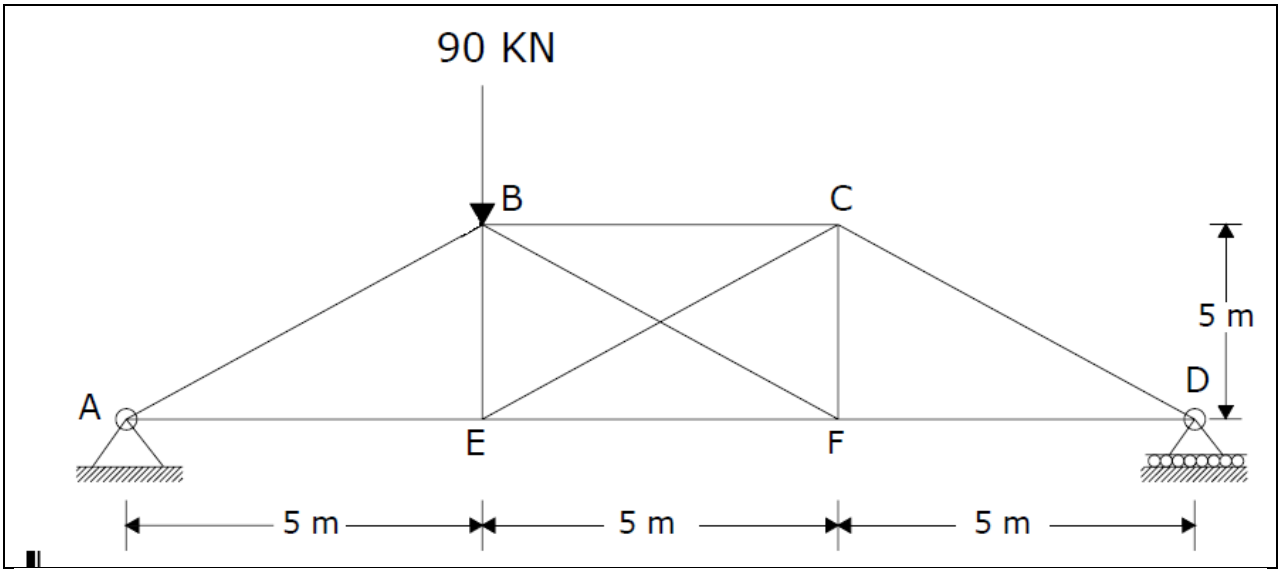

25kN
50kN
25kN
A
4m
4m
B
C
6m
D
E


10 kN
C
D
5kN
3m
A
B
3m


200kN
C
60°
30°
A
B
3 m


F
E
3 m
A
B
C
D
3 m
3 m
3 m
50 kN
50 kN
E
F
4.8m
A
B
C
D
3.6 m
3.6 m
3.6 m
135kN
B
30kN
3 m
A
C
8 m


C
4 kN
3 m
A
B
4 m
4 m
F
E
A
4m
B
C
D
4 kN
4 kN
4m
4m
4m
90 KN
45 KN
B
C
5 m
D
A
E
F
5 m
5 m
5 m


90 KN
B
C
5 m
D
A
E
F
5 m
5 m
5 m