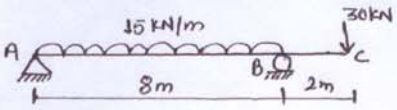
BEAM TUTORIAL

Kathmandu Engineering College
Kalimati

Q) . Draw Axial force, shear force and Bending moment diagrams of the following beams. Also locate sailent points if any.

(1)



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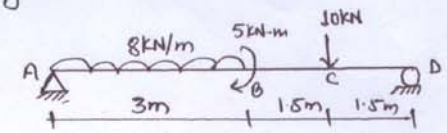

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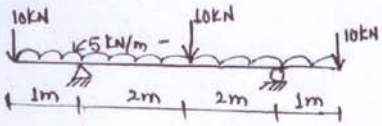

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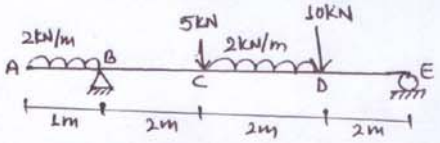

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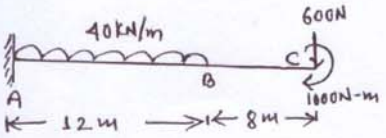

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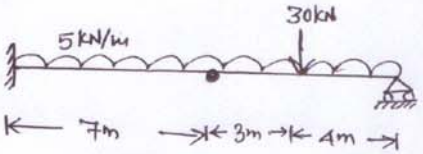

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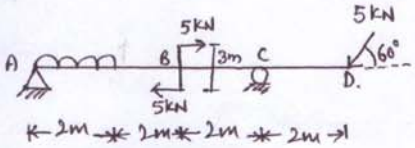

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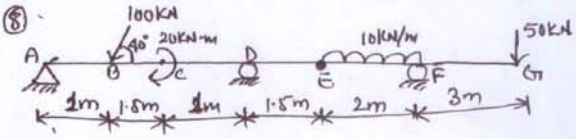

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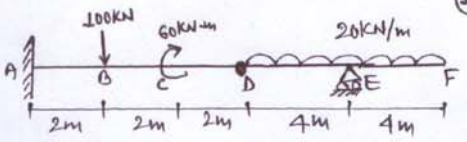

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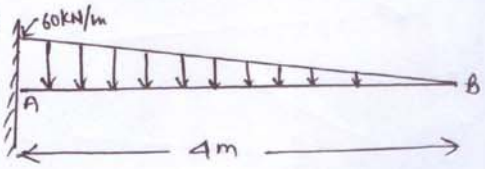

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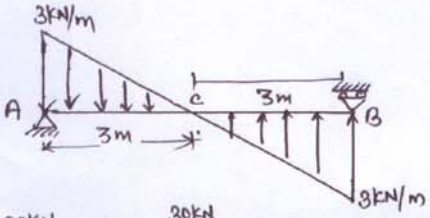

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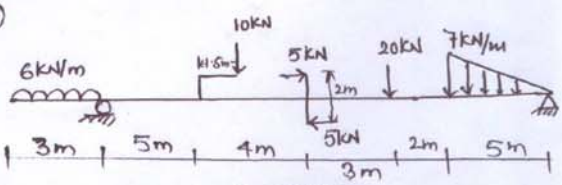

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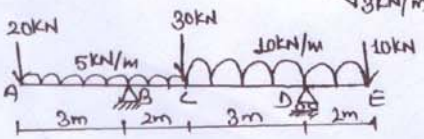

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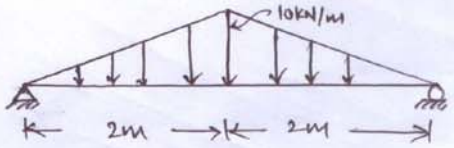

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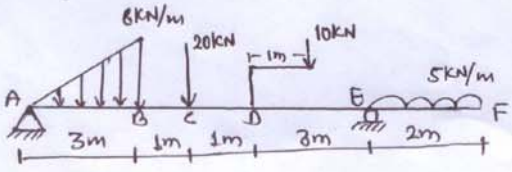

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(FRAME TUTORIAL)

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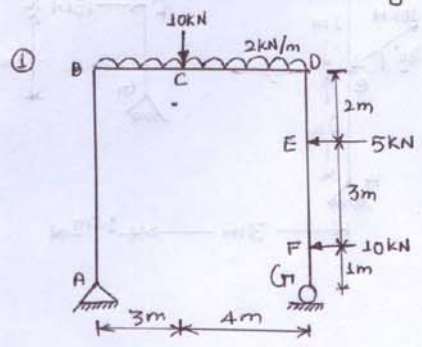
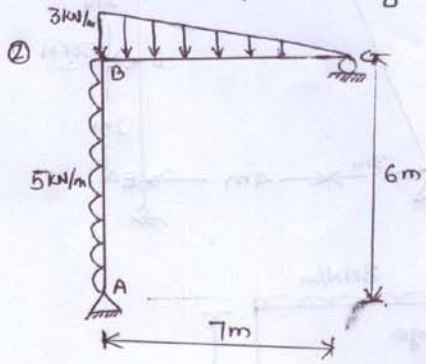
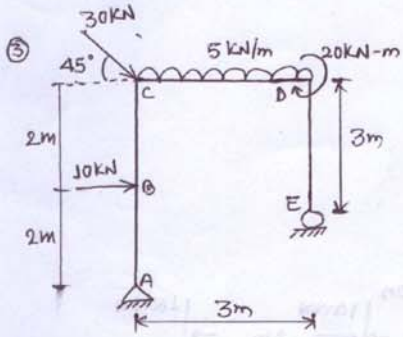
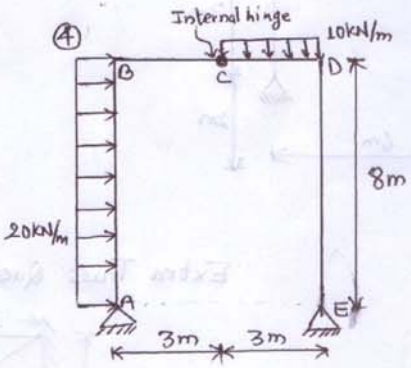
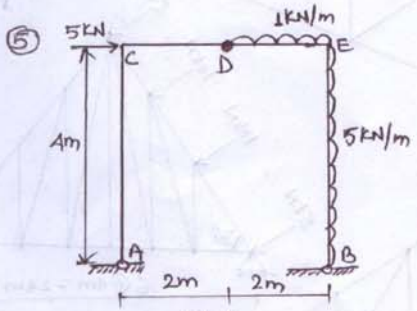
Q) Draw axial force, shear force and bending moment diagram for following frames as shown in figure. Also locate sailent points if any.

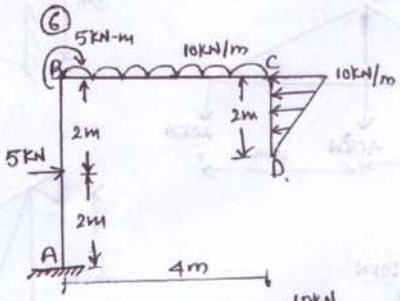


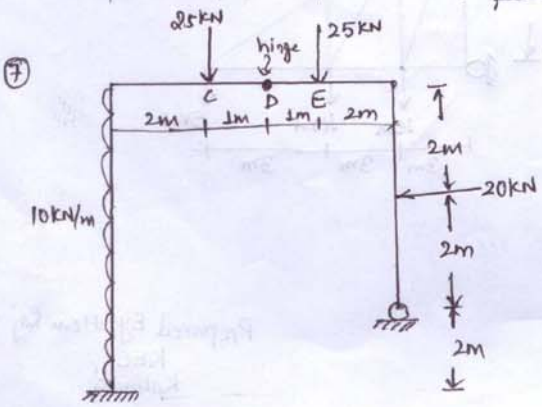


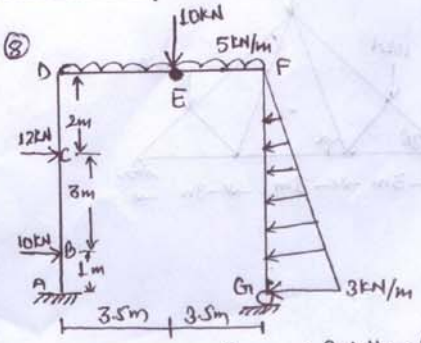












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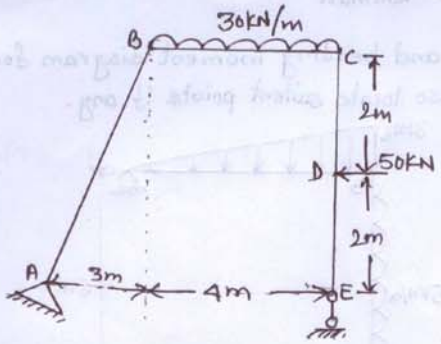
(9)



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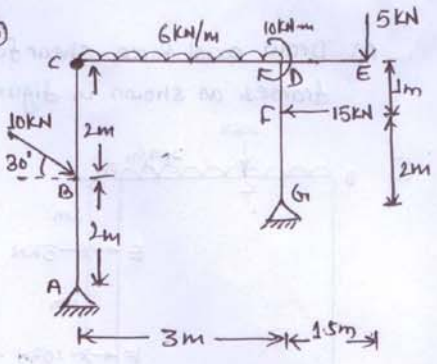

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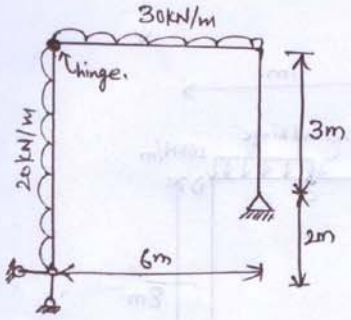
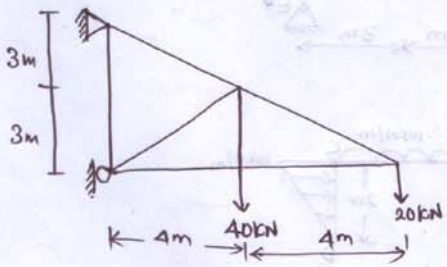
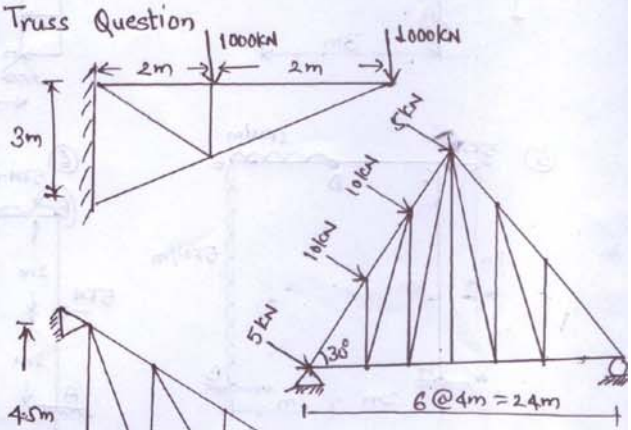
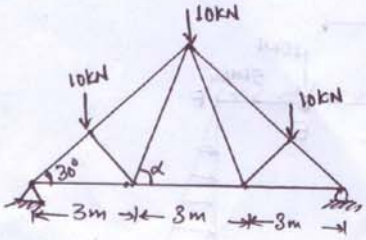
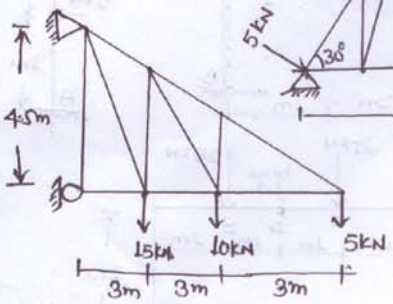


Extra Truss Question









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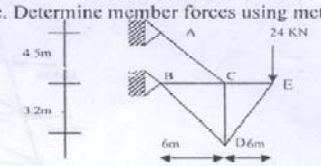
KATHMANDU ENGINEERING COLLEGE
TUTORIAL -4 (INTERNAL FORCES IN TRUSS)
B.ARCH. I/I

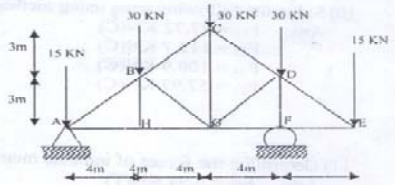
1) A truss is loaded as shown in figure. Determine member forces using method of joints. (T.U. 2058 R/B)

Ans: F_{ED} = 51 KN(C)
F_{EC} = 45 KN (T)
F_{DC} = 48 KN (T)
F_{CA} = 80 KN (T)
F_{CB} = 19 KN(C)
F_{BD} = 51KN(C)



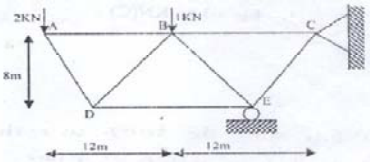
2) Determine the forces developed in members BG, BC, BH & GF of the overhanging truss loaded as shown if figure using method of section.

Ans: F_{BH} = 0
F_{BG} = 25 KN(C)
F_{CB} = 16.67 KN(C)
F_{GF} = 20.0 KN(C)



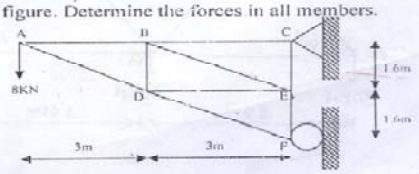
3) A truss is loaded as shown in figure. Determine the forces in all members. (T.U. 2051 R/B)

Ans: F_{DA} = 2500N(C)
F_{DB} = 2500 N(T)
F_{DE} = 3000 N(C)
F_{BE} = 3750 N(C)
F_{BC} = 5250 N(T)
F_{EC} = 8750 N(C)
F_{AB} = 1.50N (T)



4) List out the fundamental assumptions that should be made for determining the bar forces in a truss. (T.U. 2061 R/B)
5) What are the principles used write analyzing bar forces on truss. (T.U. 2059 R/B)
6) Explain any one analytical method for calculation of force developed in member of plane truss. (T.U. 2062 R/B)
7) A truss is loaded as shown in figure. Determine the forces in all members.

Ans: F_{AD} = 17KN (C)
F_{AB}= 15KN (T)
F_{CB} = 15KN (T)
F_{CE} = 8KN (T)
F_{FD} = 17 KN (C)
F_{FE} = 8KN (T)
F_{DB} =0



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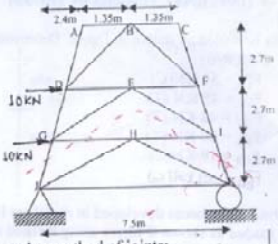
(55)

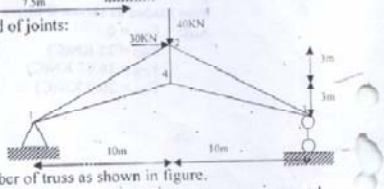
9) Determine the forces in members IK of truss shown in figure.

F_{IK} = 14.32 KN (C)



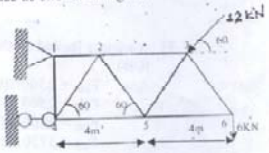
10) Solve the following truss using method of joints:

Ans: F_{12} = 77.72 KN(C)
F_{23} = 112.7 KN(C)
F_{34} = 100.9 KN(C)
F_{24} = 57.97 KN(C)

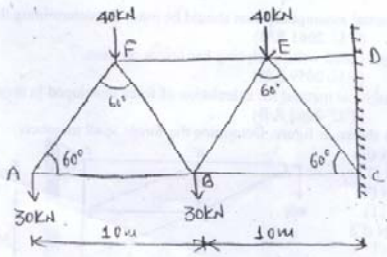


11) Determine the forces of indicate member of truss as shown in figure.

Ans: F_{23} = 6.94 KN(T)
F_{24} = 18.94 KN(T)
F_{35} = 18.94 KN(C)
F_{56} = 3.46 KN(C)



12) Determine the forces in each member of the given truss, loaded as shown in figure.



Ans

F_{AF} = 34.64 KN (T)
F_{AB} = 17.32 KN (C)
F_{BF} = 80.81 KN (C)
F_{FE} = 57.72 KN (T)
F_{BE} = 115.45 KN (T)
F_{BC} = 115.44 KN (C)
F_{CE} = 161.12 KN (C)
F_{ED} = 196.45 KN (T)