TECHNICAL UNIVERSITY OF MOMBASA

FACULTY OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF BUILDING & CIVIL ENGINEERING

UNIVERSITY EXAMINATION FOR:

DIPLOMA IN BUILDING AND CIVIL ENGINEERING

EBC 2302 : THEORY OF STRUCTURES III

END OF SEMESTER EXAMINATION

SERIES: DECEMBER 2016

TIME: 2 HOURS

DATE: Pick Date Dec 2016

Instructions to Candidates

You should have the following for this examination

-Answer Booklet, examination pass and student ID

- Pocket calculator

This paper consists of **FIVE** questions. Attempt any THREE questions.

Do not write on the question paper.

Mobile phones are not allowed in the examination room.

Question One

Using the three moment theorem, analyse the beam shown in fig. 1 below and draw the bending moment and shear force diagram. (20 marks)

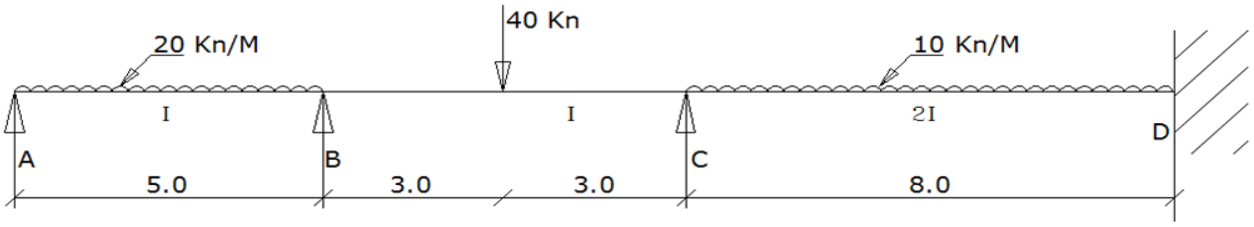

Fig. 1

Question Two

Using the method of moment distribution, analyse the beam shown in fig. 2 below and sketch the bending moment diagrams. (20 marks)

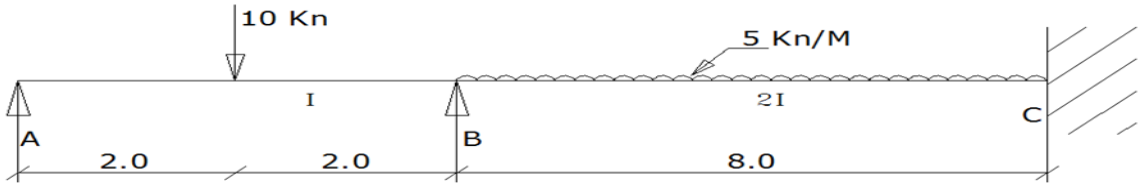

Fig. 2

Question Three

Using the method of moment distribution analyse the frame shown on fig. 3 below.(20 marks)

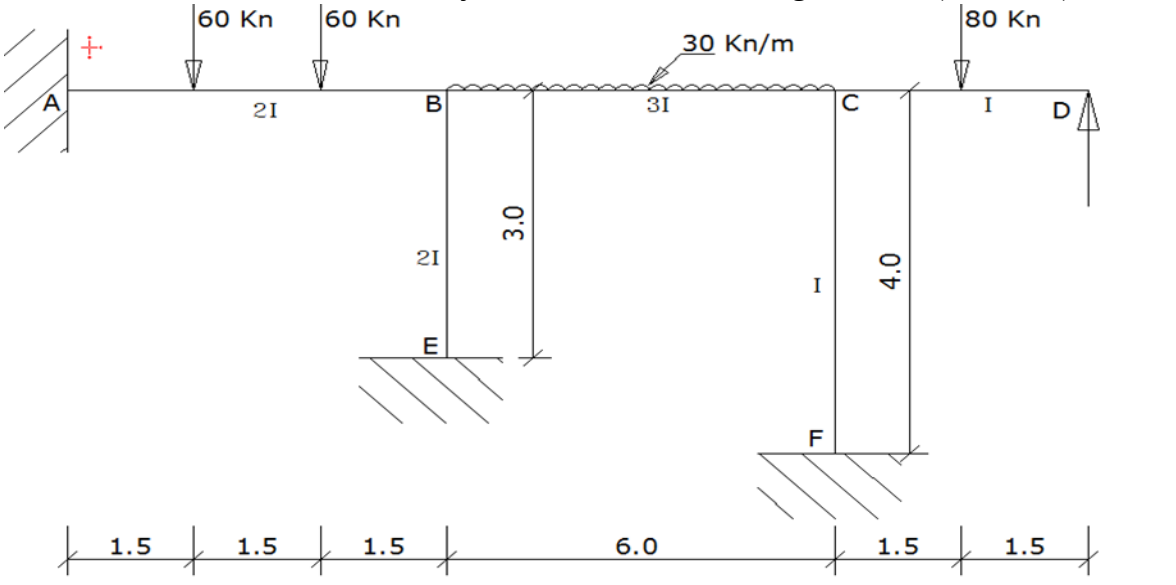

Fig. 3

Question Four

(a) Define 'Influence lines' (5 marks)

(b) Describe three uses of influence lines (5 marks)

(c) Using influence lines, determine the reaction at A, reaction at B and shear force at k for the beam in fig. 4 below. (10 marks)

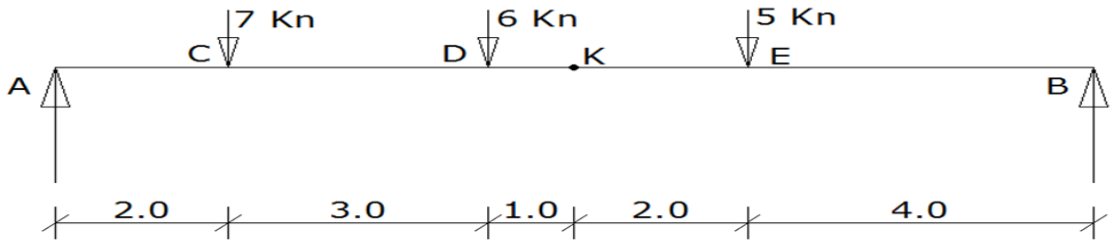

Fig. 4

Question Five

a) Derive the slope and deflection equations for a simple supported bean with a central point load using the double integration method. (15 marks)

(b) Evaluate the slope and deflection on a simple supported beam that spans 3.0 m and carry's a central point load of 10 Kn.
Take $I=12x10^{6}mm^{4}$ and E=200GPa (5 marks)