TECHNICAL UNIVERSITY OF MOMBASA

FACULTY OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF BUILDING & CIVIL ENGINEERING

UNIVERSITY EXAMINATION FOR:

DIPLOMA IN BUILDING AND CIVIL ENGINEERING

EBC 2207 : THEORY OF STRUCTURES II

END OF SEMESTER EXAMINATION

SERIES: DECEMBER 2016

TIME: 2 HOURS

DATE: 22 Dec 2016

Instructions to Candidates

You should have the following for this examination

-Answer Booklet, examination pass and student ID

-Drawing instruments.

This paper consists of five questions.

Attempt question ONE (Compulsory) and any other TWO questions.

Do not write on the question paper.

Question One

i. Briefly discuss the procedure used in determining deflections in trusses **(6 marks)**

ii. Using the McCauley's square bracket method determine the deflection of the beam in Figure Q1 at a point 3m from support A **(14 marks)**

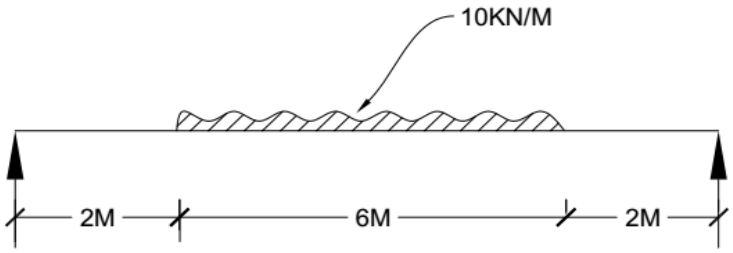

Figure Q1

Question Two

i. State the Mohr's theorems **(4 marks)**

ii. Using the Mohr's moment area theorem, determine the slope at point C of the beam in Figure Q2 shown below. Take E=200GPa I=360x10^6mm^4 **(16 marks)**

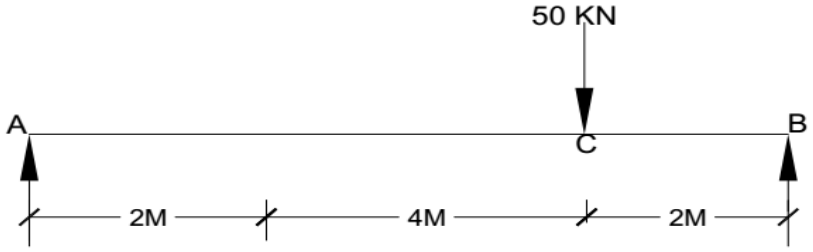

Figure Q2

Question Three

A uniform beam of length 20 metres is simply supported at its ends. It carries two concentrated loads as shown in figure Q3 below. Determine the deflection of the beam at points C and D by the McCauley's method. Take E=207GPa and I=10^{10}mm^4 (**20 marks)**

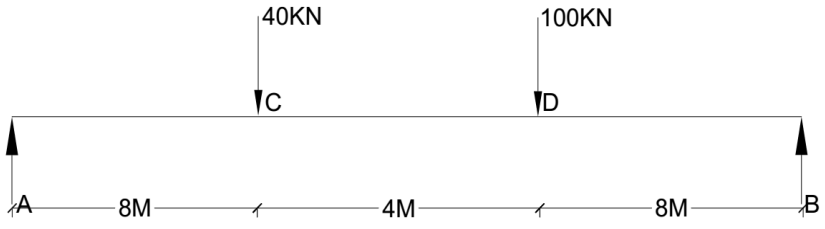

Figure Q3

Question Four

Figure Q4 below shows a simply supported beam, determine the slope at support A and deflection at midspan. Given the flexural rigidity EI=300MNm^2 **(20 marks)**

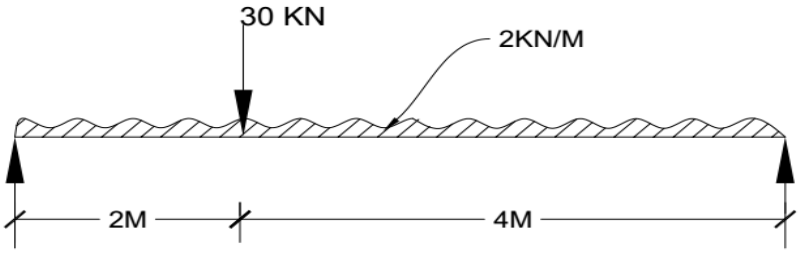

Figure Q4

Question Five

Figure Q5 below shows a pin-jointed truss ABCD carrying both a vertical and a horizontal load at joint B as indicated. Determine the magnitude of the resultant deflection at joint B. Take AE=100x10^{3}KN. **(20 marks)**

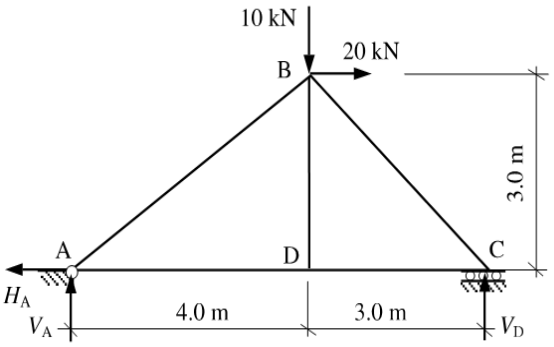

Figure Q5