Reg. No.

MANIPAL UNIVERSITY

THIRD SEMESTER B. ARCH. DEGREE EXAMINATION – MAY 2016

SUBJECT: ARC 209 - STRUCTURES III

Tuesday, May 17, 2016

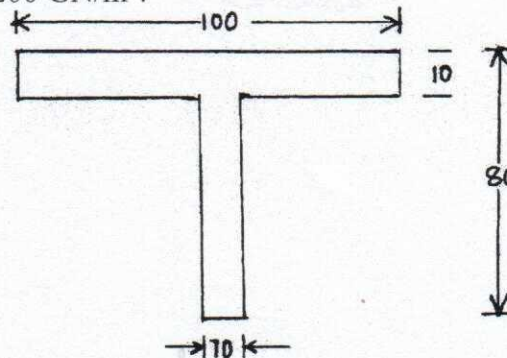Time: 10:00 – 13:00 Hrs.   Max. Marks: 50

✍ **Answer any FIVE questions.**

1. What are the assumptions made in Euler's theory? Explain different end conditions in Euler's theory.

(5+5 = 10 marks)

2. Determine the buckling load for a strut of tee section, flange width being 100 mm, overall depth 80 mm and both flange and stem 10 mm thick. The strut is 3 m long and is hinged at both ends. Take E= 200 GN/m^2.

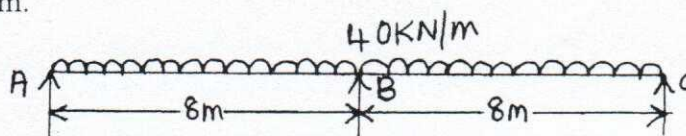(10 marks)

3. Determine the deflections at points C, D and E in the beam as shown below using Macaulay's method. Take E=200 KN/mm^2 and I=60×10^6 mm^4.
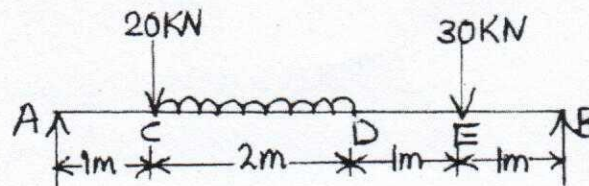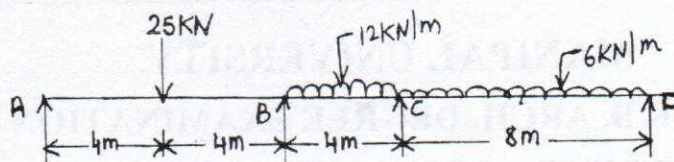

(10 marks)

4. A beam ABC of length 16m consists of spans AB and BC each 8m long and is simply supported at A, B and C. The beam carries a uniformly distributed load of 40kN/m on the whole length. Find the reactions at the supports and the support moments using the three moment theorem.
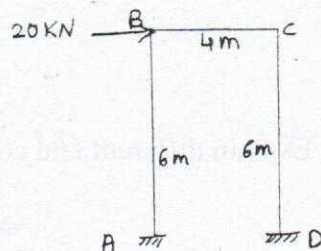

(10 marks)

5. Analyse the beam and draw the BMD and SFD.

(10 marks)

6. Analyse the portal frame shown below.

(10 marks)