B.TECH. (CIVIL) III SEMESTER

MID TERM EXAMINATION   Sep/Oct-2022

CE207: ENGINEERING ANALYSIS AND DESIGN

Time: 1:30 Hours   **Max. Marks: 25**

Note: All questions are compulsory.
All questions carry equal marks.
Assume suitable missing data, if any.

Q.1 Describe characteristics of concrete and steel with the help of typical diagram of stress-strain curves.   [CO1:5]

Q.2 Calculate the reactions for the beam as shown in the figure given below. Draw the bending moment and shear force diagrams clearly showing the values.   [CO2:5]
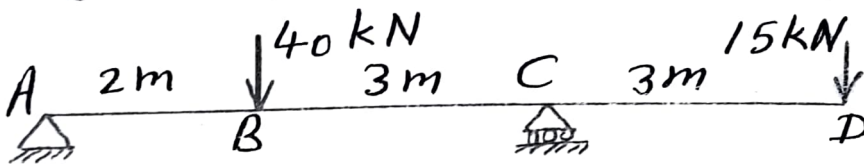
Q.3 A steel plate is bent into a circular arc of radius 10 m. The plate section is 12 cm wide and 2 cm thick as shown in figure. Find the maximum stress due to bending and moment of resistance of the section. Use $E=2\times10^6$ kg/cm².   [CO3:5]

Q.4 Determine the dry density of a soil sample with bulk density of 2.05 g/cm³ at water content of 15 %. Calculate the water content when soil sample dries to a density of 1.98 g/cm³ with void ratio remaining unchanged. [CO3:5]

Q.5 Write short answer of the following: [CO4:5]
  a. Comparison of shallow and deep foundations
  b. Different kinds of earth pressures