Reg. No. :

Question Paper Code: U2604

M.E. DEGREE EXAMINATION, MAY 2024

Second Semester

Structural Engineering

21PSE204 – STABILITY OF STRUCTURES

(Regulation 2021)

Duration: Three hours   Maximum: 100 Marks

Answer ALL Questions

PART A - (5 x 20 = 100 Marks)

1. (a) Using higher order differential equation, find the critical load for a   CO2-App   (20)
         column one end fixed and other end is hinged.

                                        Or

    (b) With a load deflection curve diagram , obtain the formula for   CO2-App   (20)
         deflection in Eccentrically loaded column.

2. (a) Determine the buckling load of a fixed hinged column   CO1-U   (20)

                                        Or

    (b) Explain the Galerkins Method of analysis and its application.   CO1-U   (20)

3. (a) Develop the differential equation for maximum deflection in case   CO3-App   (20)
         of beam column with central concentrated load.

                                        Or

    (b) Derive the slope deflection equation of a member subjected   CO3-App   (20)
         to bending and axial compression.

4. (a) Find the antisymmetric non sway mode of buckling. Compute the   CO2-App (20)
        critical load of frame shown in fig. Take E,I,L same for all
        members.
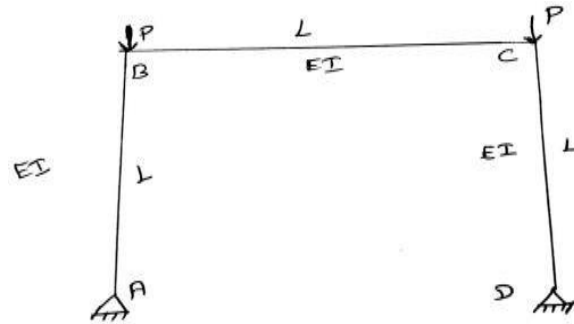
                                    Or
    (b) Illustrate Matrix approach for buckling of frames with real-time   CO2-App (20)
        examples

5. (a) Illustrate the design provisions for local buckling of plates   CO1- U   (20)
                                    Or
    (b) Analyze the stability of plates under transverse loading and explain   CO1- U   (20)
        which case affects more.

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