R20

Reg. No:

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)
M.Tech I Year I Semester Regular & Supplementary Examinations May/June-2022
THEORY OF STRUCTURAL STABILITY
(Structural Engineering)

Time: 3 hours   Max. Marks: 60

(Answer all Five Units **5 x 12 = 60** Marks)

UNIT-I

1   Derive the differential equation for maximum deflection and maximum bending   L3   12M
    moment in case of beam column with couple forces at ends.

OR

2   Derive the differential equation for beam columns with compressive force and   L3   12M
    distributed lateral load.

UNIT-II

3   Derive the effect of shear force on value of crippling load.   L3   12M

OR

4   Derive the critical load in case of buckling of bars with effect of eccentric load.   L3   12M

UNIT-III

5   Explain Reyliegh – Ritz method. Illustrate with a problem, its application with   L2   12M
    respect to the determination of critical load of a compressive member.

OR

6   Derive the reduced modulus of rectangular section.   L3   12M

UNIT-IV

7   Derive the question for the warping displacement for any bar of thin walled open   L1   12M
    section subjected to pure torsion.

OR

8   Briefly describe torsional buckling, lateral buckling and inelastic buckling.   L1   12M

UNIT-V

9   Derive the critical value of the compressive force for buckling of simply supported   L3   12M
    rectangular plates uniformly compressed in one direction.

OR

10 Derive the critical value of the compressive force for buckling of simply supported   L3   12M
    rectangular plates uniformly compressed using any direction method.

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