Q.P. Code: 16CE2014 **R16**

Reg. No. | | | | | | | | | | |

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR

(AUTONOMOUS)

M.Tech I Year II Semester (R16) Regular Examinations May 2017

STABILITY OF STRUCTURES

(Structural Engineering)

(For Students admitted in 2016 only)

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 moment in case of beam column with central load? 12M

OR

2 a. Derive differential equation for beam column? 6M

b. What are the approximate methods used in the stability analysis and discuss their merits. 6M

UNIT-II

3 a. Explain buckling of bars with varying in cross section with a suitable example? 6M

b. Explain elastic buckling of straight columns with neat sketch? 6M

OR

4 Derive expression for critical load in case of buckling of bars with intermediate compressive forces 12M

UNIT-III

5 a. Briefly discuss buckling of straight bar column. 6M

b. Differentiate between elastic buckling & inelastic buckling. 6M

OR

6 Explain reduced modulus theory and its assumptions and also derive critical load of double modulus theory. 12M

UNIT-IV

7 Derive the expression for pure torsion of thin walled bars of open cross section. 12M

OR

8 a. Explain torsional buckling 6M

b. Explain thin walled bars of open cross section by pure torsion 6M

UNIT-V

9 Derive the crippling load for simply supported beam of narrow rectangular cross section subjected to pure bending. 12M

OR

10 Write short notes on

(i) Difference between lateral & longitudinal buckling.

(ii) Write expression for one direction of buckling of simply supported plate.

(iii) Write expression for two direction of buckling of simply supported plate. 12M

***** END *****