Q.P. Code: 18CE1005 **R18**

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

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY::PUTTUR
(AUTONOMOUS)
M.Tech I year II Semester Supplementary Examinations Dec 2019
FEM IN STRUCTURAL ENGINEERING
(STRUCTURAL ENGINEERING)

Time: 3 hours **Max. Marks: 60**

(Answer all Five Units 5×12=60 Marks)

UNIT I

1	a	Explain nodes at discontinuities.	4M
	b	Explain the different steps involved in FEM.	8M

OR

2	a	What are the merits, demerits and limitations of Finite Element Methods?	6M
	b	Explain in detail finite element method procedure with an example.	6M

UNIT II

3		What is static condensation? Explain procedure of static condensation.	12M

OR

4		Derive the shape function, strain displacement matrix element stiffness matrix for a two noded 1-D Element.	12M

UNIT III

5		Explain about, Geometric invariance, Convergent and compatibility requirements.	12M

OR

6		Derive the strain-displacement matrix for CST element.	12M

UNIT IV

7		Explain the isoperimetric concept in finite element analysis.	12M

OR

8		Derive the strain-displacement matrix for 4-Noded isoperimetric quadrilateral element.	12M

UNIT V

9		Explain the basic theory of plate bending.	12M

OR

10		Explain about Hexahedral Isoperimetric elements.	12M

END