Q.P. Code: **16CE2011** **R16**

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

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)
I Year M.Tech II Semester (R16) Regular Examinations May/June 2017
ADVANCED STRUCTURAL STEEL DESIGN
(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	a) Explain in detail the various structural configurations adopted in towers with neat sketches		6M
	b) Explain various types of towers with neat diagrams		6M

OR

2	a) Write a short note on types of sections used in light gauge steel structure.		4M
	b) A beam has to carry a superimposed load of 2.5 kN/m, over an effective span of 3 m. design a hat section. Yield strength of steel is fy=235MPa.		8M

UNIT-II

3	Explain the concept of Idealized stress-strain curve for mild steel		12M

OR

4	Determine the plastic moment capacity required for a continuous beam ABC if it is fixed at A and C, hinged at B span AB is 8m and span BC is 10m. Span AB carries UDL of 4kN/m and span BC carries a point load of 10kN at 4m from B.		12M

UNIT-III

5	a.	What are the types of loads to be considered in design of steel members? Discuss in detail any three of them.		6M
	b.	Write down the advantages and disadvantages of bolted connections over welded connections		6M

OR

6	a.	Explain the deflection limits as per IS 800:2007.	6M
	b.	Explain the principles of i) working stress method ii) ultimate load method iii) plastic design	6M

UNIT-IV

7	Design a suitable angle section to carry a maximum tensile load of 150kN. Assume single row of 22mm dia bolts are used.		12M

OR

8	Design a double angle section connected on same side of a gusset plate of thickness 10 mm, to carry a factored tensile load of 110kN. Assume 22mm bolts of grade 4.6 are used.		12M

UNIT-V

9 Design a laterally supported beam of effective span 5m carrying a UDL of 20kN/m (Excluding Self Weight). Take Fe415 steel. 12M

OR

10 Design a single angle compression member 4m long and carrying a working load of 50kN. Assume that column is held in position and restrained in direction. Take Fe415 steel. 12M

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