SCHOOL OF PLANNING AND ARCHITECTURE, VIJAYAWADA

SEMESTER END EXAMINATIONS (REGULAR), MAY-2016

B. ARCH, III YEAR, VI SEMESTER

THEORY OF STRUCTURES (TS-6)

Maximum Marks – 100 **Time – 3.00 Hours**

a) Answer any Four out of 1 to7 questions.
b) Question No.8 is compulsory and answer any four out of six sub questions.
c) Scientific Calculator permitted.

Q1. A continuous beam ABC of uniform section, with span AB as 6m and BC as 4m, is fixed at C and simply supported at A and B. The beam is carrying a uniform distributed load of 120kN/m throughout its length. Find the Fixed End moments along the beam using Moment Distribution method. **(20M)**

Q2. Write any ten architectural design considerations for ductile earth quake resistance structures with neat sketches. **(20M)**

Q3. Explain the general principles for earthquake resistant structures with neat sketches. **(20M)**

Q4. A column section ISBH 300 @ 0.63kN/m with one cover plate 400mm x 20mm on either side is carrying an axial load of 2000 kN inclusive of self weight of base and column. Design a gusseted base for the column. Allowable bearing pressure in concrete is $4N/mm^2$. Allowable bending stress in base plate is 185 N/mm^2. Assume the ends of the column are faced for complete bearing. **(20M)**

Q5. Write the step by step procedure for analysis of statically in–determinate by using Moment distribution method. **(20M)**

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Q6 A continuous beam has three successive spans of 4m, 5m and 3m carries udl of 30kN/m, 20kN/m and 40kN/m respectively on the spans. Determine the bending moments and reactions at the supports. Beam has equal flexural rigidity. Draw SF and BM diagram for the beam. **(20M)**

Q7. a) Define Plated beam & Plate Girder beam with its component parts and functions. **(10M)**

b) List the typical forms of built-up beams with neat sketches. **(10M)**

Q8. i) Write about Indian Seismic Zone Map as per IS:1893(PART-I)-2002 **(4x5= 20M)**

ii) Define stiffener and list types of stiffeners and its functions with neat diagram

iii) Write the step by step procedure of design of slab base.

iv) List the various applications of cold formed steel structures

v) Explain the static analysis of mooring lines with neat sketches

vi) A horizontal cantilever 4m long carries an u.d.l of 100kN/m over a length of 4m from fixed end. If the beam is propped at free end to the level of the fixed end, find the reaction of the prop and construct S.F and B.M diagram.

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