SCHOOL OF PLANNING AND ARCHITECTURE, VIJAYAWADA

SEMESTER END EXAMINATIONS (REGULAR), NOVEMBER-2015

B. ARCH, III YEAR, V SEMESTER

TS-5: THEORY OF STRUCTURES

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

a) Answer any Four out of 1 to7 questions.
b) Question No. 8 is compulsory and out of six, four sub-questions to be answered.
c) Scientific Calculators permitted.
d) Steel Tables permitted.

Q1. Explain the following with neat Sketches **(2x10= 20M)**
a) CABLE ROOFS
b) TENSIL STRUCTURES

Q2. a) Define plated beam and plate girder beam with its component parts and functions. **(2x10= 20M)**
b) List the typical forms of built-up beams with neat sketches.

Q3. a) Draw various types of roof trusses and their suitability with respect to its span. **(2x10= 20M)**
b) Write the advantages and disadvantages of welded joints over riveted joints.

Q4. An ISLB 200 @ 198 N/m is provided as a simply supported beam over a span of 5m. Determine the imposed load the beam can carry, if the permissible stress in bending is not to exceed 165 N/mm^2 and the deflection is not to exceed span/325. **(20M)**

Q5. Design single angle purlin from the following data **(20M)**
Dead load including self weight of purlin = 650 N/m^2
Live load = 550 N/m^2, wind load normal to roof = 1000 N/m^2
Spacing of trusses= 4m c/c, spacing of purlins = 2.0m
Span of truss = 8m, Angle of slope of roof = 35^0; Yield stress of steel = 250MPa

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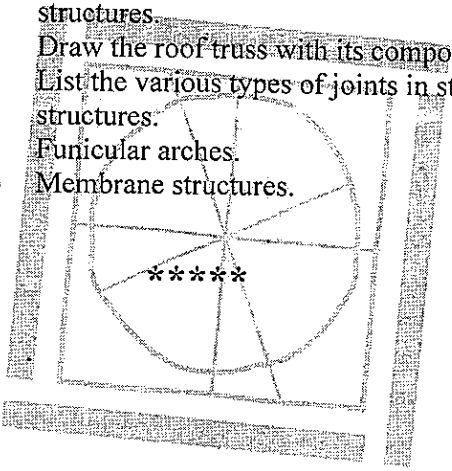
Q6 a) List the methods of soil exploration and sample collections with neat sketches. **(2x10= 20)**

b) List the loads to be considered in design steel structures.

Q7. A flat of 150mm x 8mm is connected to a gusset plate by a lap joint. Design the joint by fillet welds along the sides of flat only. The permissible tensile stress is 150 N/mm^2 and the permissible stress in the weld is 108 N/mm^2. **(20M)**

Q8. Write about any four of the following: **(4x5=20M)**

(i) Types of Retaining walls.
(ii) Deep Foundations with examples.
(iii) Various forms of Tension Members.
(iv) Wind load calculation for steel structures.
(v) Draw the roof truss with its components.
(vi) List the various types of joints in steel structures.
(vii) Funicular arches.
(viii) Membrane structures.



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