SCHOOL OF PLANNING AND ARCHITECTURE, VIJAYAWADA

SEMESTER END EXAMINATIONS (REGULAR) NOVEMBER - 2016

B. ARCH III YEAR V SEMESTER

THEORY OF STRUCTURES (TS-5)

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) Code books (i) IS 456:2000 (ii) IS 800:2007 (iii) Steel Tables are allowed.
d) Scientific Calculator is allowed.

Q1. A five span continuous one way slab is to be used for a School building. The centre to centre distance of supporting beams is 3.2M. Design the slab using Mzo grade concrete and HYSD reinforcement of grade Fe 415 and show detailing. **(20M)**

Q2. Design a three span continuous beam ABCD where AB=BC=CD=5M and supported on masonry walls at A.B.C.D having 230mm thickness. The beam carries a characteristic dead load inclusive of its self weight of 20KN/m. It also carries a live load of 10KN/m. Design the beam using Mzo grade concrete and HYSD reinforcement of Fe 415 showing detailing. **(20M)**

Q3. Design a continuous steel beam of spans 5.5M, 6.5M and 5.5M carrying a uniformly distributed load of 32KN/m and the beam is laterally supported. **(20M)**

Q4. Design a simply supported slab to cover a hall with internal dimensions 4.0M x 6.0M. The slab is supported on 230mm thick masonry walls. Assume a live load of $3KN/m^2$ and a floor finish load of $1KN/m^2$. Use Mzo concrete and Fe 415 grade steel. Assume that the slab corners are free to lift up. Also show the detailing. **(20M)**

Q5. a) Differentiate between statically determinate and indeterminate structures. **(10M)**

b) Write down the equations for degree of static and kinematic indeterminacy. **(10M)**

P.T.O

(20M)

Q6. Explain in detail the classification of piles with neat sketches.

Q7. Explain the procedure to determine the load carrying capacity of piles by **(20M)**

(i) Static formulae (ii) Dynamic formulae

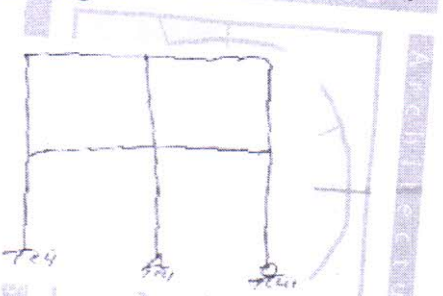
Q8. Write short notes on any FOUR of the following: **(4x5= 20M)**

a) Explain the different types of floor systems for designing structures.

b) Purpose of IS 875 (Part 1-5): 1987

c) Describe the laboratory procedure for testing concrete samples.

d) Determine the degree of static indeterminacy.



e) A Wooden pile is being driven with a drop hammer weighting 20 KN and having a free fall of 1.0M. The penetration in the last blow is 5mm. Determine the load carrying capacity of the pile according to the engineering news formula.

f) Write about under reamed pile foundation.

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