Printed Pages : 2

NAR403

(Following Paper ID and Roll No. to be filled in your Answer Book)

PAPER ID : **181416**

Roll No.

B. Arch.

(SEM. IV) THEORY EXAMINATION, 2014-15

ARCHITECTURAL STRUCTURES - IV

Time : **3** Hours] [Total Marks : **50**

Note : (i) Attempt any **five** questions.
(ii) **All** questions carry equal marks.
(iii) Assume any missing data.

1 (a) State the assumptions made in working stress method (WSM) and draw transformed section for doubly reinforced beam.

(b) Draw N-A diagram for singly reinforced beam section and write equation for N-A.

2 Design a rectangular beam of clear span 5.5 m, resting on 750 mm wide wall on both sides. (SS). L.L. 30,000N/m given, $\sigma_{cbc} = 7N/mm^2, \sigma st = 140N/mm^2$.

3 Draw transformed section for T-beam reinforced beam and write equation for N-A and moment of resistance.

4 Design a doubly reinforced beam with clear span 6 m, carrying a L.L. load of 35000N/m and its own wt. given b = 400mm, d = 800 mm (limited)

$$\sigma_{cbc} = 7.0N/mm^2,\ \sigma_{st} = 140N/mm^2.$$

5 (a) Discuss soil classification based on particle size of roil.

(b) Define the following for soils,

(i) Void ratio

(ii) Bulk density

(iii) Saturated density

(iv) Plastic limit

(v) Moisture content

6 Design a two-way slab 4m×5m resting on all sides L.L 2000 N/m^2, finish load 1700 N/m^2 in addition to self weight use

$$\sigma_{cbc} = 5\ N/mm^2\ \sigma_{st} = 140N/mm^2 a = 0.87,\ j = 0.867.$$

7 Define one-way and two-way slab using Rankine formula and derive M_x and M_y.