(Following Paper ID and Roll No. to be filled in your Answer Books)	
Paper ID : 181405	Roll No.

B. Arch.

Theory Examination (Semester-IV) 2015-16

ARCHITECTURAL STRUCTURES-IV

Time : 3 Hours   *Max. Marks : 100*

Note : 1. Attempt all questions.

2. All questions carry equal marks.

3. IS 456:2000 is allowed and use of IS 456:2000 allowed.

4. Any missing data may be assumed and explained suitably.

1.   Attempt any FOUR parts: (5×4=20)

(a)   Various types of cement.

(b)   Dead load and Live load.

(c) Properties of cement.

(d) Effect of chlorides in concrete.

(e) Various constituents of concrete.

2. (a) Discuss singly reinforced beam, its transformed section and determine neutral axis. (10)

(b) Differentiate between Limit State Method and Working Strees Method. (10)

OR

(c) Find out the moment of resistance for RCC section on overall size 25cm × 50 cm having 5no. of 20mm bars in tension zone. The effective cover over reinforcement is 3.5cm. Concrete is used in section M20 grade and steel HYSD Fe415. (20)

3. (a) Explain under and over reinforced beam. Find moment of resistance for concrete failure Mc and for tension failure Mt. (10)

(b) Design doubly reinforced beam for Bending Moment 120KNm. Use M20 concrete and Fe415 steel and the cross section of beam is 300mmx500mm. (10)

4. (a) Design a two way slab for a residential roof 4.5mx6m simply supported on all the sides on load bearing walls 300m thick without any provision for torsion at corners. Use M20 and Fe415. Check for shear is not necessary. (20)

<div align="center">**OR**</div>

(b) Design a singly reinforced beam of clear span 5m It is supported on 300mm thick walls. Loading on beam is 16KN/m including self wt. use M20 grade concrete and Fe415 steel. (20)

5. (a) A brick wall 300mm thick caries a load of 180 KN/m length. Design a reinforced concrete footing, if the safe bearing capacity of soil is 120KN/m². Use M25 grade of concrete and Fe415 steel. Draw the reinforced details neatly. (20)

<div align="center">**OR**</div>

(b) Express minimum depth of foundation. Explain types of foundation. Explain isolated column footing.

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