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KD-7010

B. Arch. III (Sem. VI) Examination

December – 2012

Structural Design & Systems - VI

(New Course)

Time : **2** Hours] [Total Marks : **50**

Instructions :

(1)

નીચે દર્શાવેલ ☛ નિશાનીવાળી વિગતો ઉત્તરવહી પર અવશ્ય લખવી.
Fillup strictly the details of ☛ signs on your answer book.

Name of the Examination :

☛ **B. Arch. 3 (Sem. 6)**

Name of the Subject :

☛ **Structural Design & Systems - 6 (New)**

☛Subject Code No. : **7 0 1 0** ☛Section No. (1, 2,.....) : **Nil**

Seat No. :

Student's Signature

(2) Assume suitable data and Specifically mention it.

(3) Figures to the right indicate full marks.

(4) Use of Nonprogrammable scientific calculator is permitted.

(5) Use of IS - 456, 2000 is permitted.

1 A rectangular beam section of 300 mm width and 500 mm depth is reinforced with 5 -16 mm diameter bars at bottom and 3-16 mm diameter bars at top. Find out the moment of resistance of a beam. Use the grade of steel; Fe - 415 and grade of concrete; M - 15. **12**

2 Design a short RCC column subjected to 1500 KN axial load. Take M 20 and Fe - 415 grades of materials. Draw your designed details. **8**

OR

2 Explain load transfer, for intez water tank. Draw required sectional plan and sections at various levels showing reinforcement detailing. **8**

3 Design an RCC isolated sloped footing for 400 mm × 400 mm size of column, subjected to 1600 KN load. Safe Bearing capacity of soil is 200 KN/m^2, take M20 and Fe -415 grades of materials. Draw sectional plan and section showing reinforcement detailing. **10**

4 Attempt any four out of following : **20**

(1) What is plate girder ? Explain types of stiffeners used in it. Draw required sections showing its details.

(2) What is castellated girder ? Why and where it is used. Explain the process how it is obtained.

(3) Explain and draw beam to beam and beam to column framed connection.

(4) Explain load transfer, deformation for an under ground water tank. Draw required sectional plan and sections at various levels showing reinforcement detailing.

(5) What is combined footing ? Draw and explain reinforcement detailing in typical combined footing.