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RM-7009

B. Arch. - III (Sem. VI) Examination

May / June - 2010

Structure - VI

Time : 3 Hours] [Total Marks : 100

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 :

☛ **Structure - 6**

☛Subject Code No. : **7 0 0 9** ☛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) Draw detailed drawings to support your answer.
(6) Use of IS-456 is permitted.

Q. 1

(a) **Attempt all questions.** 15

1. Why prestressed concrete structure is not used under dynamic loading ?
2. Why losses occur in prestressed concrete ?
3. Why cantilever type of retaining wall is not used beyond 6 m depth of soil?
4. Why stiffeners are used in Plate girder?
5. Why minimum amount of steel is required as distribution steel in RCC structure?

(b) A basement wall is to be designed as RCC wall, what kind of retaining wall you would go for & why? 05

Attempt any TWO Questions out of Q-2,Q-3 & Q-4

Q-2 Calculate stresses at the stage of Transfer & service for the prestressed concrete simply supported beam of 15 m span having rectangular cross section of size 300 mm X 600 mm Beam is subjected to imposed load of 20 KN/m. take 15% loss of prestress. Beam is subjected to prestress by a cable put at a distance of 100 mm from bottom caring 1000 Kn prestressing Force. 15

Q-3 For the given dimension of Retaining wall , check the stability against Overturning & sliding. specific weight of soil is 18 KN/m^3, Cp = 1/3, μs = 0.6, SBC = 150 KN/m^2. Refer **Fig-1** 15

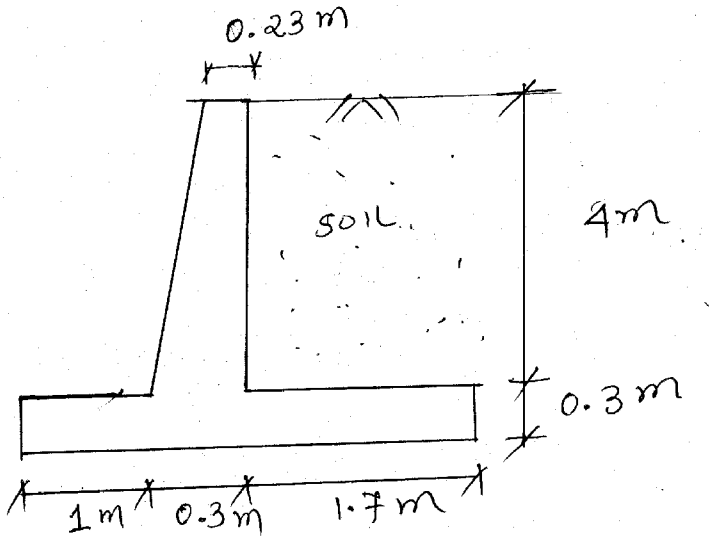

FIG-1

Q-4 For the typical Slab –Beam type Raft foundation, Explain the load transfer & behavior of members. Draw typical structural plan & section passing through main beam, secondary beam, & slab showing detailed reinforcement lay out. 15

Q-5

(a) Explain why a typical shape of intez tank is used as over head water tank. 05

(b) Explain the load transfer & behavior of on ground Rectangular water tank. Draw structural plan & required sections showing reinforcement detailing. Also explain which steel is resisting which action. 15

Attempt any TWO Questions out of Q-6, Q-7 & Q-8

Q-6 Design an RCC column for 700 KN axial load . Take M 20 & Fe-415 grades of materials. Draw your designed details. 15

Q-7 Design an RCC isolated sloped footing for 500 mm X 500 mm size of column , subjected to 800 KN load. Safe Bearing capacity of soil is 200 KN/m^2 , take M20 & Fe -415 grades of materials. Draw sectional plan & section showing reinforcement detailing. 15

Q-8 What is plate Girder ? Draw sectional Plan , elevation & sections showing various parts of Plate girder. Explain the function of each parts. 15