



RM-7009

**B. Arch. - III (Sem. VI) Examination**  
**May / June - 2010**  
**Structure - VI**

Time : 3 Hours]

[Total Marks : 100

**Instructions :**

(1)

नीचे दृशविवेक निशानीवाणी विगतो उत्तरवही पर अवश्य कपनी.  
Fillup strictly the details of signs on your answer book.

Name of the Examination :

Name of the Subject :

Subject Code No. :     Section No. (1, 2,.....):

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.

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

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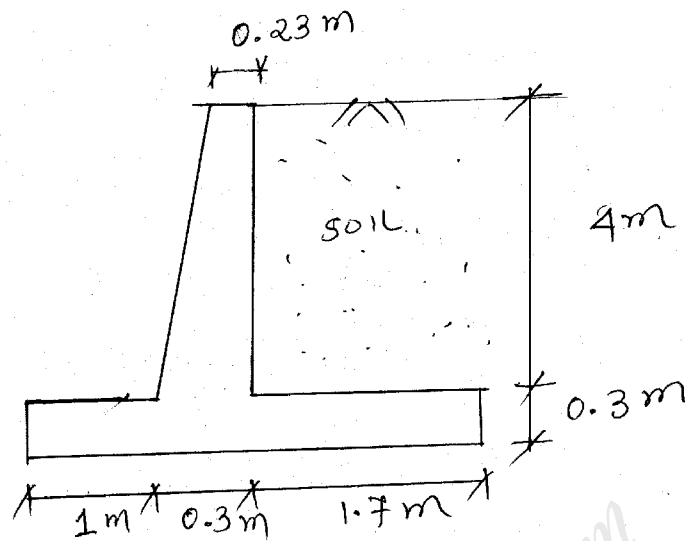


FIG-1

- 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<sup>2</sup> , 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