



**SF-7009**

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

**May/June - 2011**

**Structure - VI**

Time : 3 Hours]

[Total Marks : 100

**Instructions :**

(1)

नीचे दृष्टावेक निशानीवाणी विगतो उत्तरवडी पर अवश्य लपवी.  
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.

1 Attempt all questions : **20**

- (i) An economic solution is required for on ground water tank. Which shape you will use and why ?
- (ii) Contractor has forgotten to put horizontal stirrups in a counter fort. Explain now how load will be transferred ? Give your comments.
- (iii) An existing Prestressed concrete simply supported beam is now made a cantilever beam. What changes are required to make it possible.
- (iv) Explain how castellated girders are made.
- (v) Explain various types of stiffeners used in Plate girder and why ?

**Attempt any two Questions out of Q-2, Q-3 and Q-4**

2 Calculate stresses at the stage of transfer and service for 15 the prestressed concrete simply supported beam of 20m span having rectangular cross section of size 300mm × 700mm Beam is subjected to imposed load of 15KN/m. take 20% loss of prestress. Beam is subjected to prestress by a cable put at a distance of 80mm from bottom caring 2000KN prestressing force.

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- 3 Explain load transfer in a Counter fort type retaining wall. Draw deformation of various parts. Explain and draw reinforcement lay out. Draw required sectional plan, sectional elevation and sections. 15
- 4 For the typical Slab-Beam type Raft foundation, Explain the load transfer and behavior of members. Draw typical structural plan and section passing through main beam, secondary beam, and slab showing detailed reinforcement lay out. 15
- 5 (a) What is Hoop tension and Hoop Compression ? Give proper structural example of each case. 5  
 (b) Explain load transfer, behavior and reinforcement lay out for Intez tank. 15

**Attempt any two Questions out of Q-6, Q-7 and Q-8**

- 6 Design an RCC column for 1500KN axial load. take M 20 and Fe-415 grades of materials, Draw steel detailing. 15
- 7 Design an RCC isolated sloped footing for 500mm×500mm size of column, subjected to 700KN load. SBC of soil is 150 KN/m<sup>2</sup>, take M20 and Fe-415 grades of material. Draw sectional plan and section showing reinforcement detailing. 15
- 8 For the given dimension of Retaining wall, check the stability against Overturning and sliding. Specific weight of soil is 18 KN/m<sup>3</sup>,  $C_p=1/3$ ,  $\mu_s=0.6$ , Refer Fig.1. If retaining wall is not stable, how you will make it stable ? Explain few solutions 15

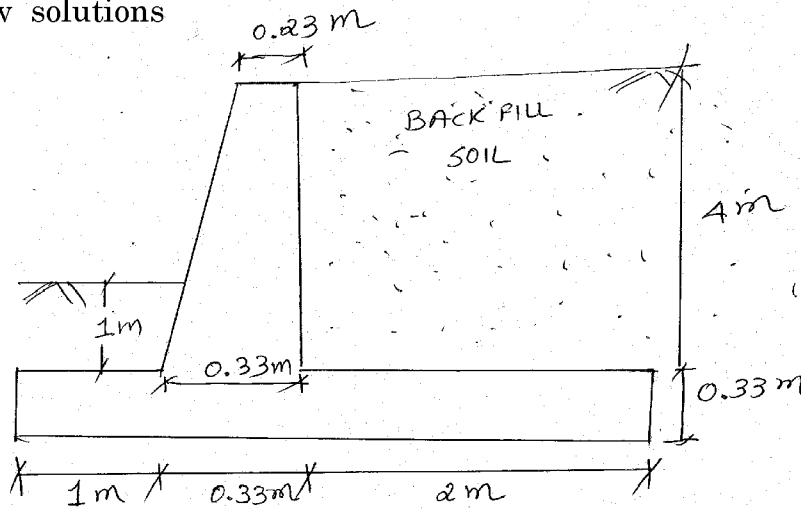


Fig.1