



SF-7669

B. E. - IV (Sem - VIII) (Civil) Examination
May / June - 2011
Design of Advance Concrete Structures
(Elective - I)

Time : 4 Hours]

[Total Marks : 100

Instructions :

(1)

नीचे दृष्टावेव निशानीवाणी विगतो उत्तरवही पर अवश्य लक्षवी. Fillup strictly the details of signs on your answer book.	Seat No. :
Name of the Examination :	<input type="text"/>
<input type="text" value="B. E. - 4 (Sem - 8) (Civil)"/>	<input type="text"/>
Name of the Subject :	<input type="text"/>
<input type="text" value="Design of Advance Concrete Structures (Elective-I)"/>	<input type="text"/>
Subject Code No. : <input type="text" value="7"/> <input type="text" value="6"/> <input type="text" value="6"/> <input type="text" value="9"/>	<input type="text"/>
Section No. (1, 2,.....): <input type="text" value="Nil"/>	
Student's Signature	

- (2) Use of IS - 456 : 2000 and interaction charts from SP-16 is permitted
- (3) Wherever not mentioned, the materials are M20 and Fe 415.
- (4) Assume suitable data if necessary and mention them clearly.
- (5) Neatly drawn pencil sketches will earn special credits.

1 Design an interior panel of a flat slab without drop and column head. The dimensions of slab panel is 5m x 7.5 m. Take L.L. of and floor finish 4.5 kN/m² and 1. kN/m² respectively. Use concrete grade M25 and HYSD reinforcement of 415 grade. The column size is 400 x 500 mm and the storey height is 4 m. 25

OR

1 Design an interior panel of a flat slab with panel size 6x6 m supported by column of size 500 x 500 mm. Provide suitable drop. Take live load as 4 kN/m². Use M20 concrete and Fe415 steel. 25

- 2 The roof of a 8 m wide hall is supported on a portal frame 25 spaced at 4m intervals. The height of the portal frame is 4m. The continuous slab is 120 mm thick. L.L. on roof is 1.5 kN/m². Bearing capacity of the soil is 150 kN/m². The columns are connected with a plinth beam and the base of the column may be assumed as fixed. Design the column and beam members of portal frames.
- 3 Differentiate Bunker and Silo and Detail. Design a Silo of 25 inside diameter 12m and height of 25m. The opening is 500 mm in diameter. Use Janssen's theory for calculating pressure. Adopt angle of repose - 25°, $\mu' = 0.48$. Ration of horizontal pressure to vertical pressure = 0.38 and density of stored material 8.5 kN/m³.
- 4 Discuss different RC compnents subjected to torsion. 25 Prepare structural design and drawing for rectangular beam with 230 mm x 560 mm as subjected to ultimate moment = 100 kN.m., ultimate S.F. = 70 kN and ultimate torsional moment = 40 kN.m. use M20 - Fe415.
- OR**
- 4 Design a spherical dome for a hall of diamter = 22 m and 25 rise of 5.5 m. Assume LL = 2.0 kN/m². A lantern load of 70 kN is applied over top area of 1.7 m. diameter near crown. Also design ring beam. Draw neat sketch.
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