



KD-6714
B. Arch. III (Sem. V) Examination
December - 2012
Structural Design & Systems - V
(New Syllabus)

Time : 2 Hours]

[Total Marks : 50

Instructions :

(1)

<p>नीचे दृशावेक निशानीवाणी विगतो उत्तरवडी पर अवश्य लपवी. Fillup strictly the details of signs on your answer book.</p> <p>Name of the Examination : B. Arch. - III (Sem. - V)</p> <p>Name of the Subject : Structural Design & Systems - V (New)</p> <p>Subject Code No. : 6 7 1 4 Section No. (1, 2,.....): Nil</p>	<p>Seat No. : □ □ □ □ □ □</p> <p>Student's Signature</p>
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- (2) Assume suitable data & specifically mention it.
- (3) Use of IS 800, IS 875-part I, part II, part III, Steel table is allowed.
- (4) Use of nonprogrammable Scientific calculator is allowed.
- (5) Draw required sketches & drawing as per the requirement.

- 1 Calculate Dead load & Live load per panel point for a roof truss. Select proper roof truss for a hall of size 10 m X 30 m. Also design centre to center spacing & rise for your chosen truss. 12

OR

Calculate wind load per panel point for above chosen roof truss. Building is having medium opening & situated in Ahmedabad. Height of eaves level from ground is 12 m.

- 2 A single angle section ISA 100 X 75 X 8 is connected to a 12 mm thick gusset plate at the ends with five 16 mm diameter bolts to transfer tension through longer leg as shown in fig -1 . Determine the design tensile strength of the angle section assuming that , the yield & ultimate stress of steel are 250 N/mm² & 410 N/mm² respectively. 14
- 3 Calculate compressive strength of ISA 75 X 70 X 6 assuming that the angle is loaded through one leg when it is connected by 2 bolts at each end. The length of member 2 m & $f_y = 250$ N/mm². 12

OR

Determine an axial load carrying capacity for the Column section ISLB 500 @ 75 Kg/m having length 5 m & pinned at ends. Take $f_y = 250$ N/mm² , $E = 2 \times 10^5$ N/mm²

- 4 Calculate Moment of resistance of ISMB 350 @ 75 kg/m, if span of a simply supported beam is 5 m & subjected to 40 kN/m uniformly distributed load. $Z_p = 889.57 \text{ cm}^3$. 12

