



AE-6031
B. Arch. - II (Sem. IV) Examination
May / June - 2015
Structural Design & Systems - IV (NEW)
(Syllabus "D")

Time : 2 Hours]

[Total Marks : 30

Instructions :

(1)

<p>नीचे दर्शायेव निशानीवाणी विगतो उत्तरवही पर अवश्य कपनी. Fillup strictly the details of signs on your answer book.</p> <p>Name of the Examination :</p> <p>☛ B. ARCH. - II (SEM. IV)</p> <p>Name of the Subject :</p> <p>☛ Structural Design & Systems-IV (NEW) (Syllabus "D")</p> <p>☛ Subject Code No. : 6 0 3 1 ☛ Section No. (1, 2,.....): Nil</p>	<p>Seat No. :</p> <table border="1" style="width: 100%; height: 20px;"><tr><td style="width: 15%;"></td><td style="width: 15%;"></td><td style="width: 15%;"></td><td style="width: 15%;"></td><td style="width: 15%;"></td><td style="width: 15%;"></td></tr></table> <div style="border: 1px solid black; border-radius: 15px; padding: 10px; text-align: center; margin-top: 10px;">Student's Signature</div>						

- (2) Assume Suitable data & specifically mention it.
- (3) Figures to the right indicate full marks.
- (4) Use of Nonprogrammable scientific calculator is permitted
- (5) Use of IS-456, IS 875, and IS 800 are permitted.

- 1 A singly reinforced rectangular beam section of 250 mm × 450 mm over all depth is reinforced with 1 – 16 + 2 – 12 mm diameter bars at top. Find out the moment of resistance of a beam. Use the grade of steel, Fe-500 and grade of concrete, M-15. **06**
- 2 Design a beam 'AB'; of a building, given in fig-1. Use M-20 grade of concrete and Fe – 415 grade of steel. live load is 3 kn/ sq. m Draw your designed section showing reinforcement detailing. **10**

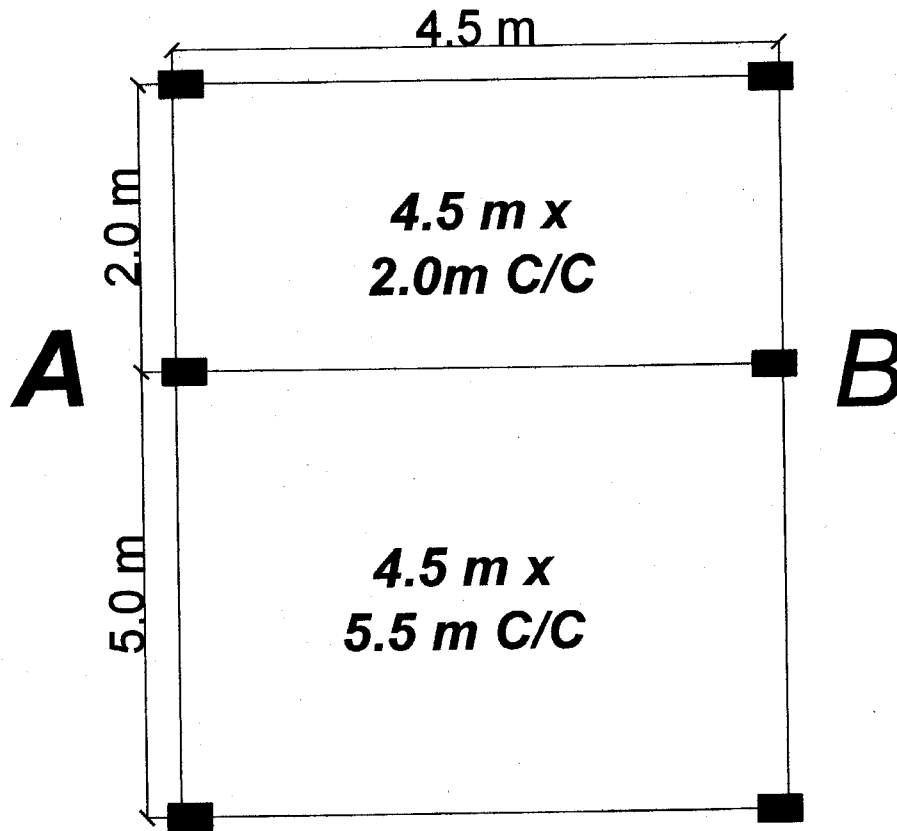


Fig-1

- 3 Design a shear reinforcement for a simply supported beam of span 4.5 m. Subjected to a maximum shear force 160 kN. The beam section is of 230mm × 550mm over all depth. Use the grade of steel; Fe-415 and grade of concrete; M-20. There are 2 – bars of 25 mm dia+3 bars of 12 mm dia. are used in tension zone. Draw your designed section showing reinforcement detailing. 10

OR

- 3 Design a simply supported slab of span 3.5 m. The live load on a slab is 3 kn / Sq.m. Use M-20 & Fe-415 Grade of concrete and steel. Draw your designed section showing reinforcement detailing. 10
- 4 (a) Explain "M-30" grade of concrete. 04
- (b) Which are basic design methods of R.C.C. design ?