

INDIRA GANDHI NATIONAL OPEN UNIVERSITY (IGNOU) - 2006

B. TECH DEGREE EXAMINATION

DESIGN DETAILING

(CIVIL ENGINEERING)

TIME - 3 HOUR

MARKS - 70

- **NOTE: ATTEMPT ANY FIVE QUESTIONS.**
- **ALL QUESTIONS CARRY EQUAL MARKS. CANDIDATES ARE ALLOWED THE USE OF IS-B00, IS-456 AND A POCKET CALCULATOR.**
- **THE STRESS ON THE DETAILING PART AND DESIGN MAY BE DONE USING APPROXIMATE METHODS..**

1. Give typical reinforcement details of an R.C. cantilever retaining wall, retaining 5 m of earth fill. The foundation level is 1 m deep. All data regarding soil properties may be suitably assumed. Give views and sections of the wall and base slab. (14)
2. Give typical details of an R.C. two-pile group. The diameter of the piles is 500 mm, and it supports a 300 x 500 mm diameter R.C. column. (14)
3. (a) Name the various methods of welding commonly met with in practice. (4)
(b) A double-angular is made up of 75 x 75 x 8 M.S. angles carries a load of 300 kN Draw help of approximate design. (10)
4. Two ISMC-300 channels as shown in Figure 2 (a) and (b) for use a compound battened column in each case. Find the distance c (or c') so that the moments of inertia of the section is the same in both the principal directions. Show the elevation of the battened columns, giving their suitable dimensions in each case. (14) [Properties of ISMC-300 : $I_{xx} = 6362.6 \text{ cm}^2$. $I_{yy} = 310.8 \text{ cm}^2$. Flange width : 90 mm. Centre of gravity (C_{yy}) = 23.6 mm] (14)
5. What are the various systems of water-piping in an air-conditioning installation ? Explain why water-conditioning is necessary and draw the details of a water-conditioning system. (14)
6. Describe the electrical and physical requirements of an elevator/ lift in a high-rise building. What precautions are required for them ? (14)
7. Write short notes on the following : (14)
 - (i) Minimum reinforcement in R.C. members
 - (ii) Define actual power, apparent power, and reactive power in an electrical supply ,system
 - (iii) Factors contributing to human comfort
 - (iv) Weld Gauges