CIVIL ENGINEERING DEPARTMENT
INDIAN INSTITUTE OF TECHNOLOGY DELHI
MAJOR TEST, SESSION 2006-2007, IIST SEMESTER
Subject : CE 234 - Structural Design I
Full Marks : 40 Time : 2 hrs.

Q.1 (a) What do you understand by equibrium and compatibility torsion. (2)

(b) Draw reinforcement pattern of an interior panel of flat slab. (5)

b) Design solid slabs as shown in the figure below and draw reinforcement detailing. Consider: (13)

Concrete of grade - M 25, Steel of grade - Fe 425
Live load = 5 kN/sq.m. at service state

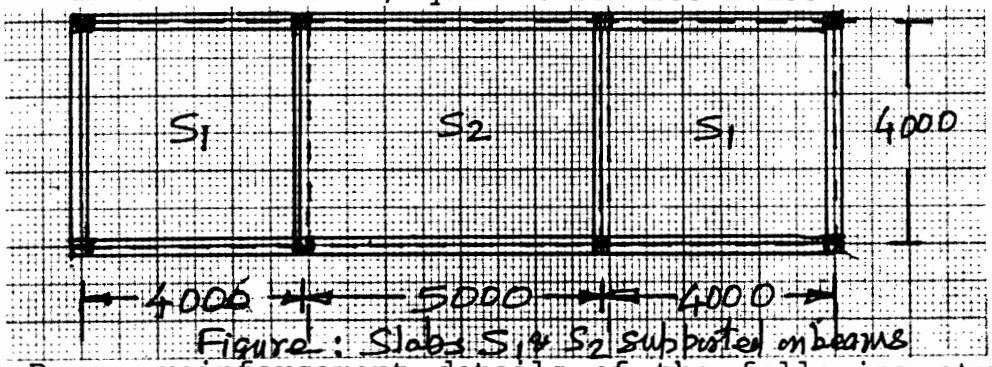
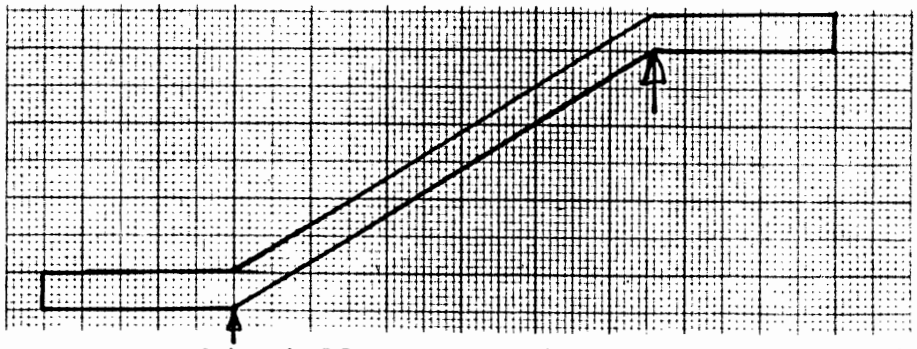


Figure : Slabs S_1 & S_2 supported on beams

Q.2 (a) Draw reinforcement details of the following structure. (5)



(b) Design a biaxially eccentrically loaded branced rectangular column deforming in single curvature for the following data: (12)

P_u = 2000 kN
M_{uxt} = 150 kN.m, M_{uyt} = 125 kN.m
M_{uxb} = 150 kN.m, M_{uyb} = 125 kN.m
l = 8.5m, l_{ex} = 7 m, l_{ey} = 6 m
Column section: B(in the x-direction) = 400mm
D(in the y-direction) = 600mm
Concrete of grade M25, Steel of grade F_e 415
Pubx,Puby=qc fck BxD + qs p BxD where qc=0.2, qs=0.3