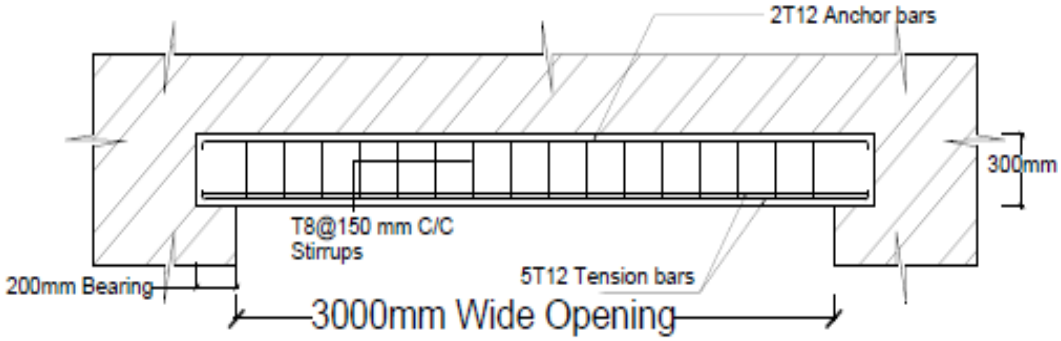
EXPERIMENT NO: 11

Exercise: 11.1

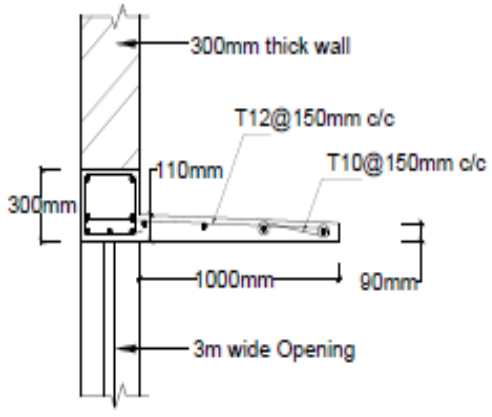
Drawing standard sections for Lintel and chajja.

Sketch the reinforcement details for the **lintel beam with chejja** for 3m wide opening. Size of lintel beam (300x300) mm. Lintel is provided with #5 of 12ϕ bars in tension zone and 2 legged vertical stirrups of 8ϕ at 150 c/c.
Chejja details: projection- 1m; thickness at supports- 110mm and at end- 90mm; main steel provided is 12ϕ @ 150 c/c and distribution steel 10ϕ @ 150 c/c.

LINTEL AND CHEJJA (Fig:2.13)



L/S OF LINTEL



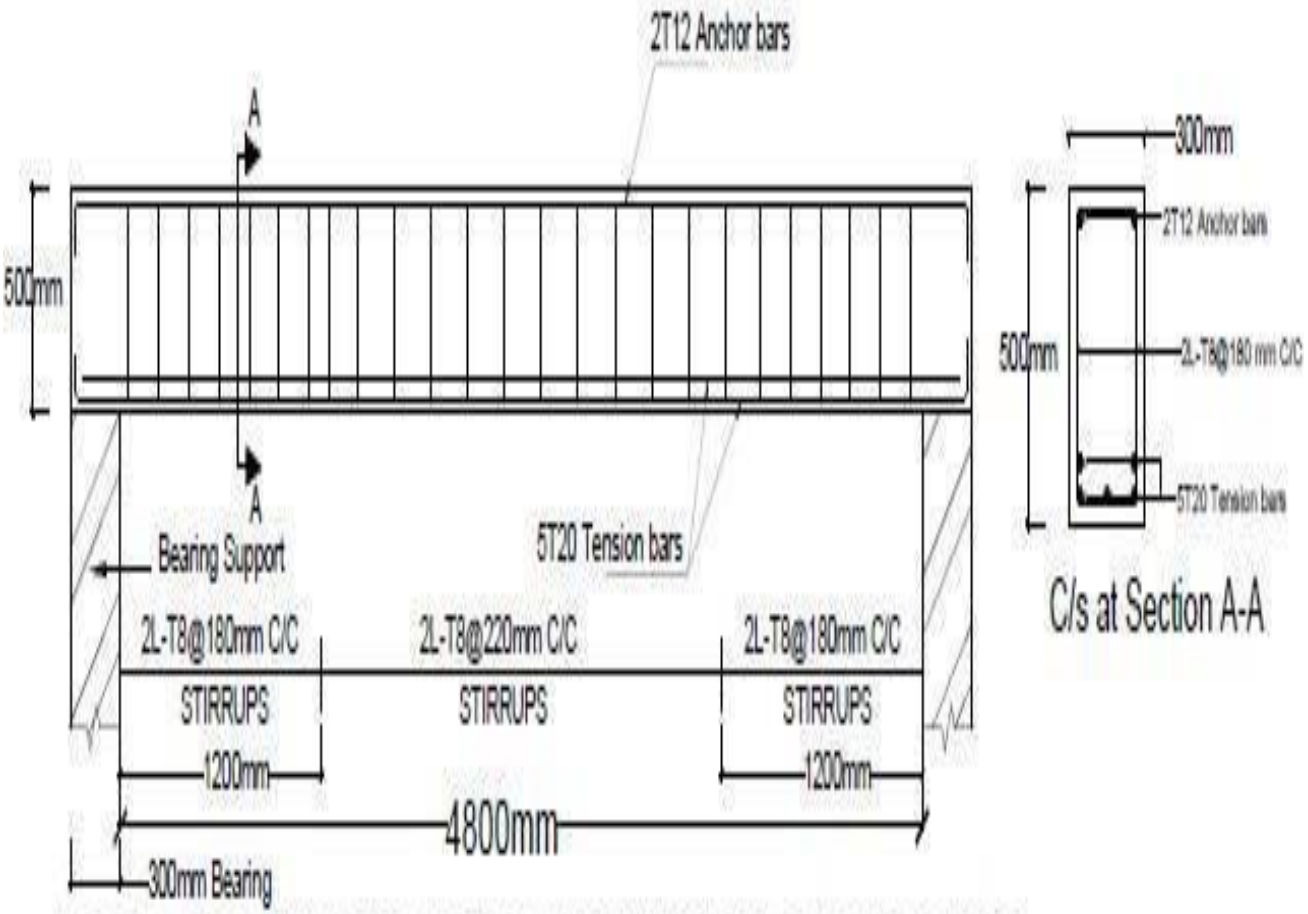
C/S OF LINTEL AND CHEJJA

Exercise: 11.2

Drawing standard sections for RCC BEAMS

Draw the longitudinal section and cross section of a rectangular RCC beam simply supported **Singly Reinforced Beam** with the following data:
Clear span = 4.8m, Bearing at the supports = 300mm, Width of beam = 300mm,
Overall depth of beam = 500mm.
Main reinforcement consists of #5 - 20ϕ bars in two layers, Provide #2 - 12ϕ as anchor bars. Stirrups: 2L 8ϕ @ 180 c/c near the supports up to 1.20m and @ 220 c/c in the remaining portion.

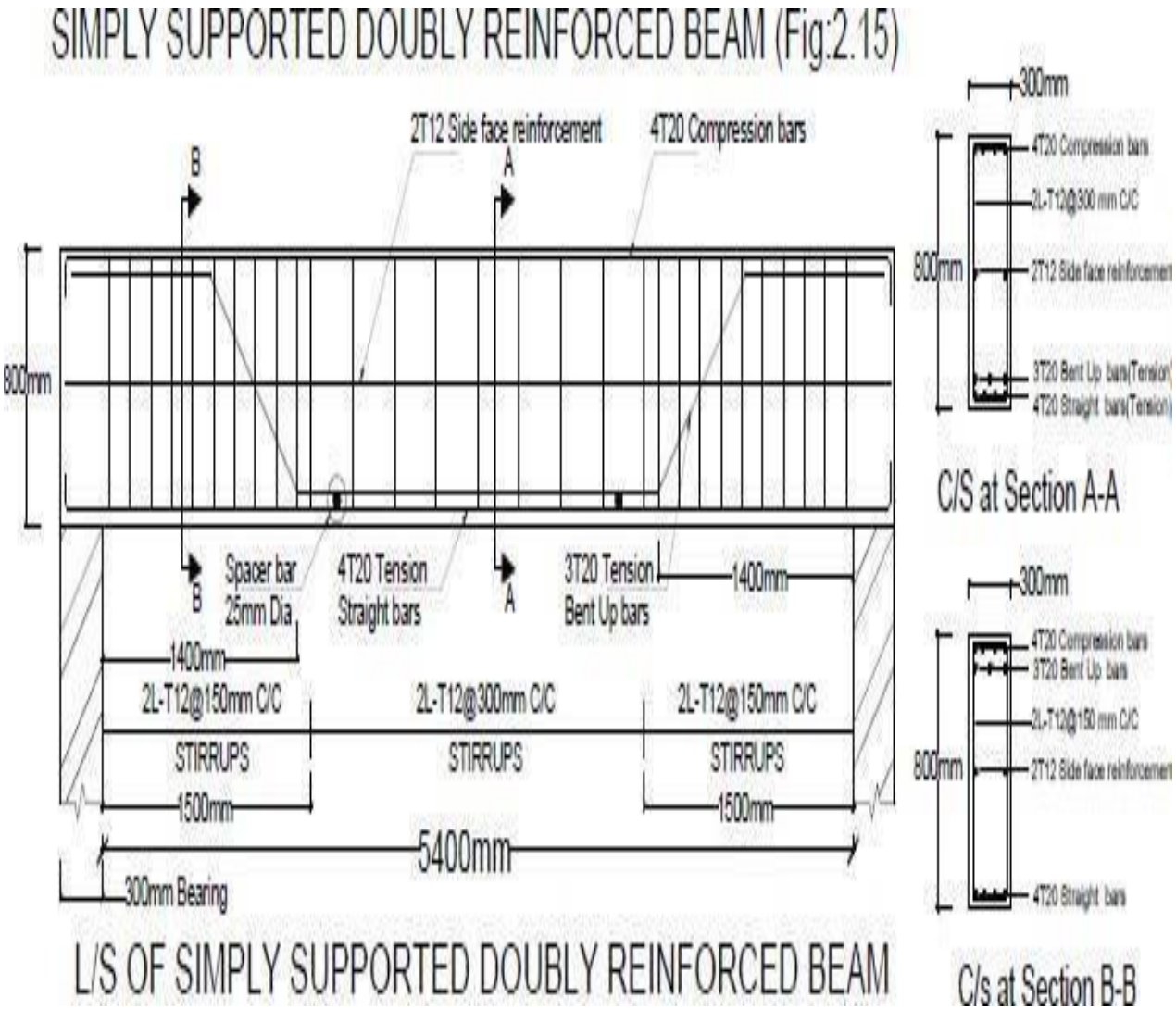
SIMPLY SUPPORTED SINGLY REINFORCED BEAM (Fig:2.14)



L/S OF SIMPLY SUPPORTED SINGLY REINFORCED BEAM

Exercise: 11.3

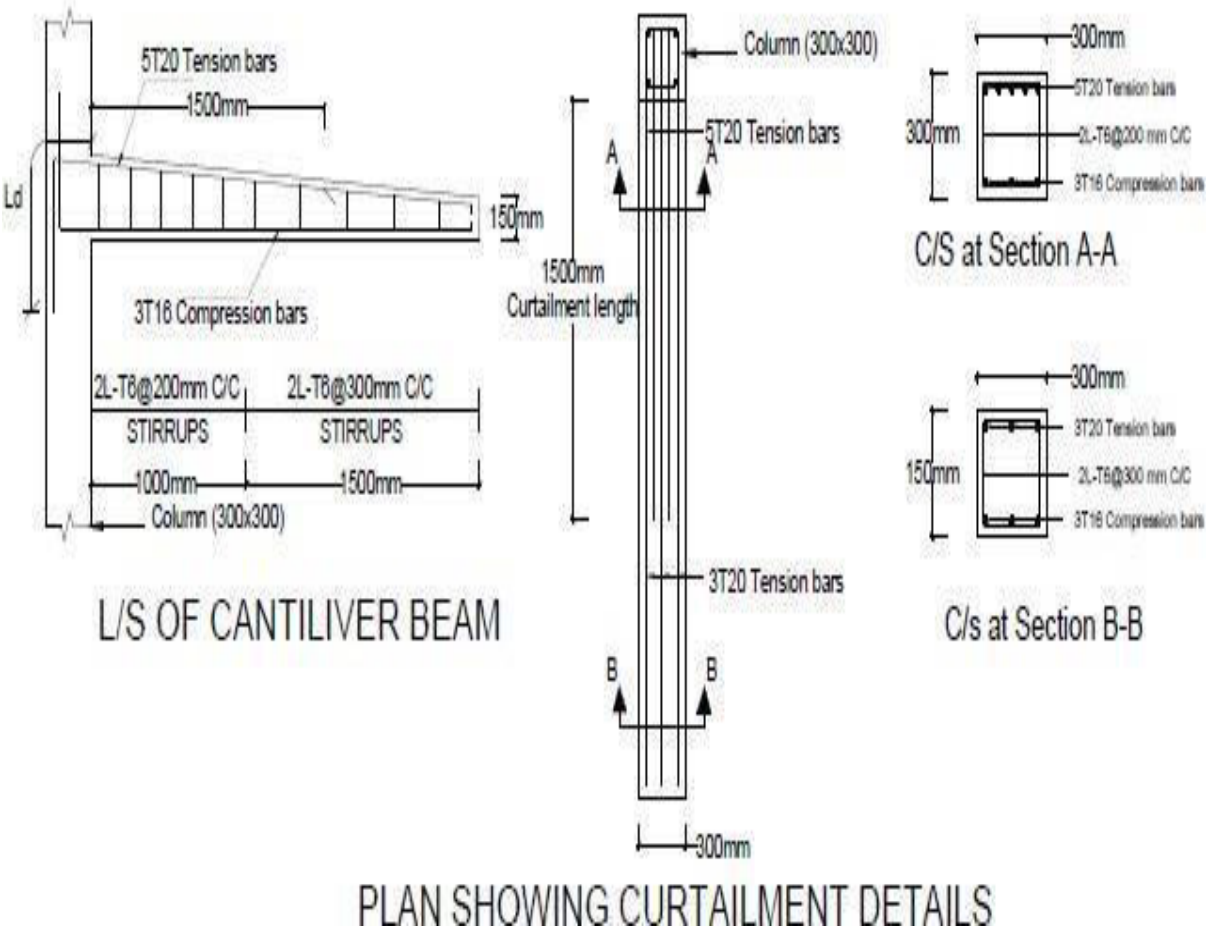
Draw a detailed longitudinal section, a cross section near the supports and a section at the middle of the span of a **Simply Supported Doubly Reinforced beam** for the following data: Clear span = 5.4m, Bearing over the supports = 300mm,
Size = 300 x 800 mm
Main reinforcement tensile: #7 - 25ϕ. 4 straight and 3 bent up @ 1400mm from support.
Compression reinforcement: #4 – 25ϕ.
Spacer bars=25 ϕ, Side face reinforcement=#2-12ϕ
Shear reinforcement: 2L - 12ϕ @ 150 c/c for a distance of 1.5m from the support and 2L - 12ϕ @ 300 c/c for remaining middle portion.



Exercise: 11.4

Draw longitudinal section and cross section of a **cantilever beam** from the following data: Clear projection from the face of RCC column = 2500mm
Size of column = 300mm x 300mm
Size of beam at fixed end = 300mm x 300mm Size of beam at free end = 300mm x150 mm
Reinforcement main bars: #5 - 20ϕ with 2 bars curtailed at 1500mm from the support and show the curtailment plan.
Compression bars: #3 - 16ϕ
Stirrups: 2L - 6ϕ @ 200 c/c up to 1000mm from support and @ 300 c/c in remaining length.

CANTILEVER BEAM (Fig:2.16)



Exercise: 11.5

Drawing standard sections for Slabs

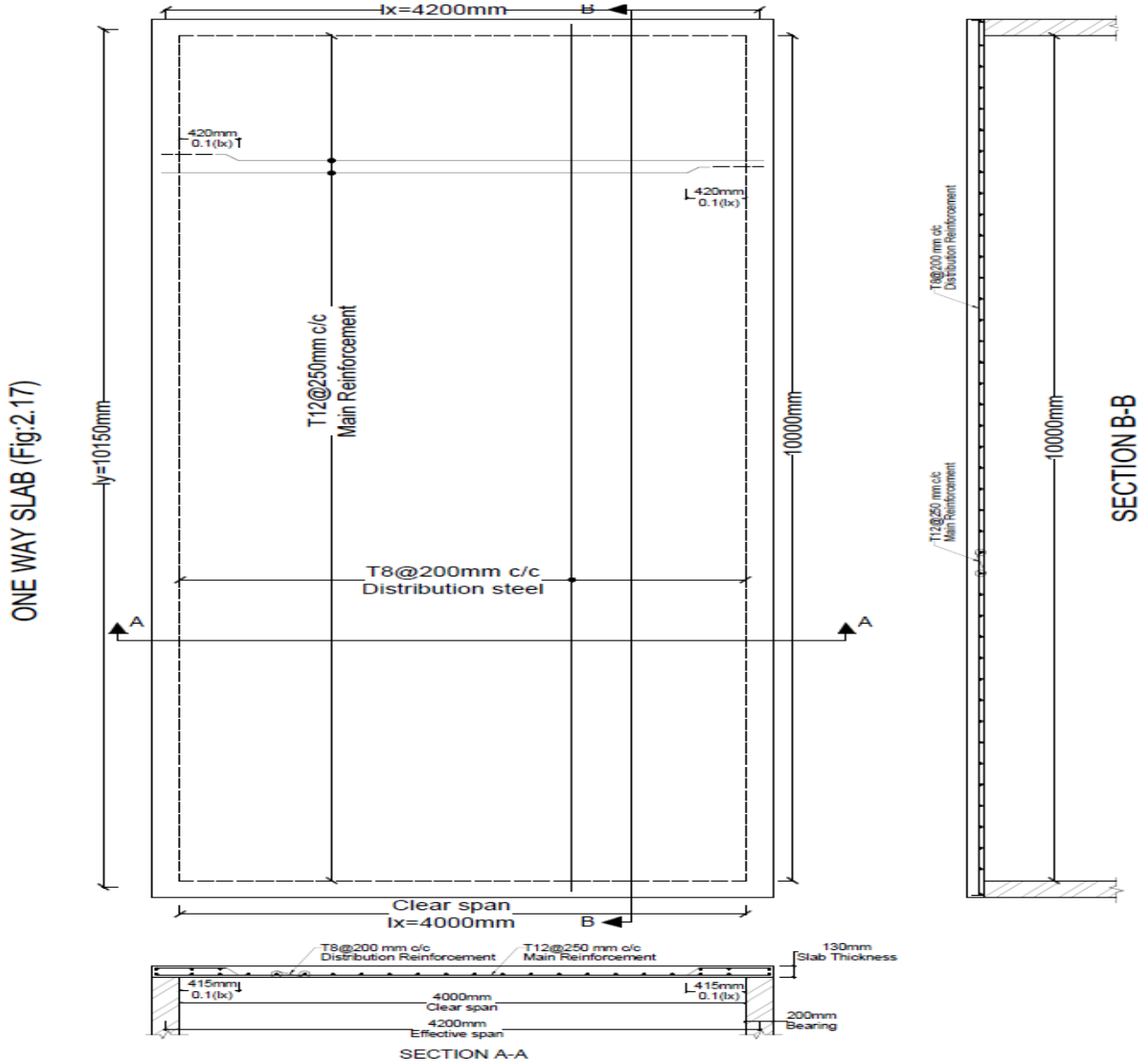
Draw cross section and plan of **one-way roof slab** showing the details of reinforcement for the following data:

Clear span = 4m, Length of slab = 10m

Thickness of slab = 130mm, Bearing wall = 200mm

Main reinforcement: 12ϕ @ 250 c/c with alternate bars bent up.

Distribution reinforcement: 8ϕ @ 200 c/c.



Exercise: 11.6

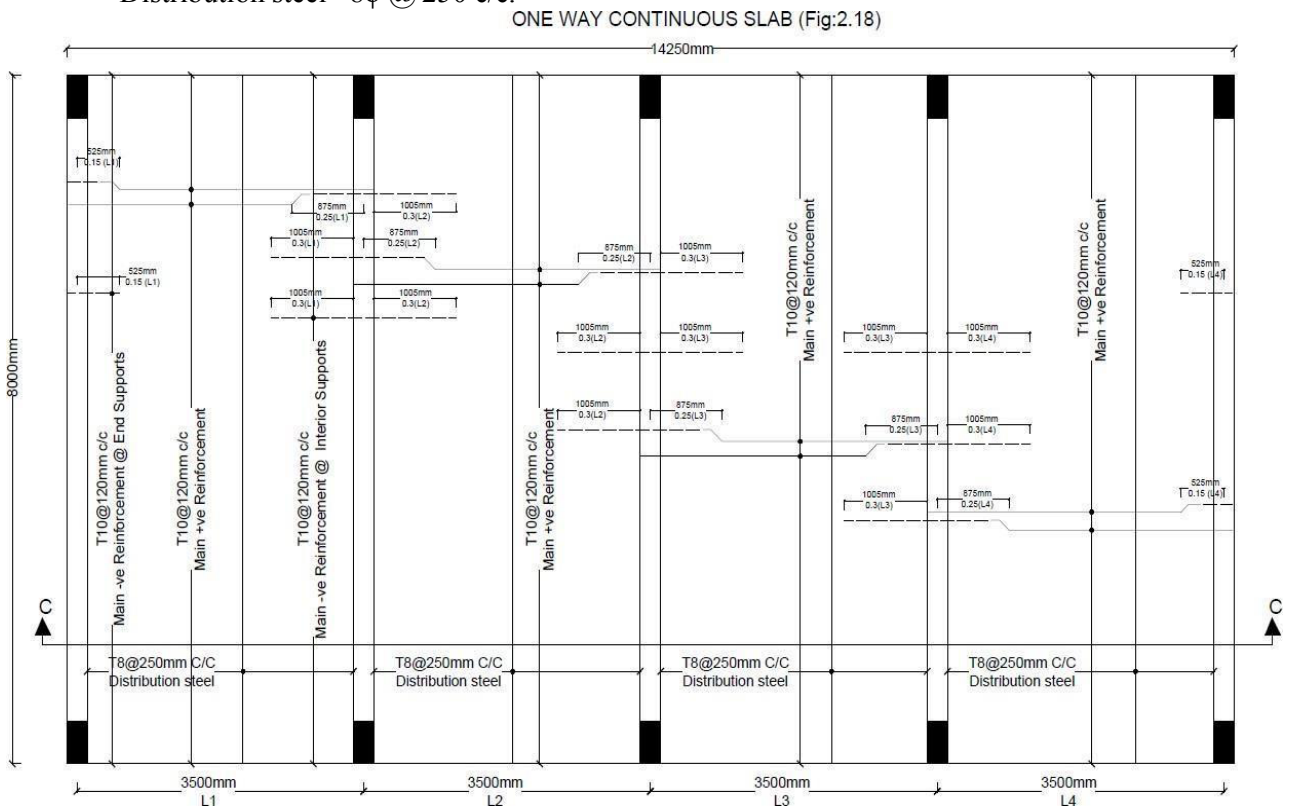
One-way continuous slab has been provided for a hall of clear dimensions 8mx14.25 m. the slab is supported on RCC beams. The following details are given.

C/C distance of supporting beams=3.5m, Column dimensions on which beam rest=250mmx500mm, C/s of beams=250mmx600mm, Slab thickness=150mm, Beam depth is inclusive of slab depth.

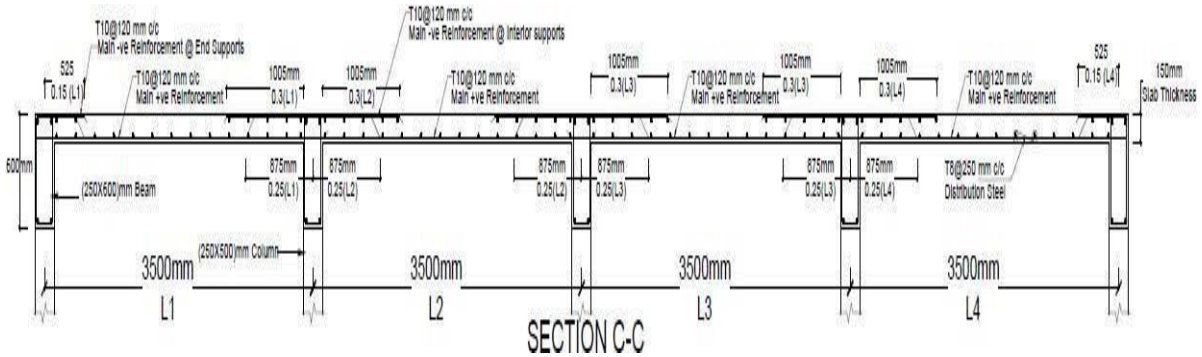
Main positive reinforcement at the end and interior panels=10ϕ @120 c/c

Main negative reinforcement at all supports= 10ϕ @120 c/c.

Distribution steel =8ϕ @ 250 c/c.



Draw cross section and plan showing the details of reinforcement (Bottom & top).



Exercise: 11.7

A **simply supported two way slab** is supported on all sides by using 230mm thick wall. The dimension of two-way slab is 3m x 4m (Clear). Following are the reinforcement details: Along shorter span: 10ϕ @125 c/c, Along longer span: 10ϕ @150 c/c, Negative steel for shorter span: 10ϕ @250 c/c, Negative steel for longer span: 10ϕ @300 c/c, Alternative bars are cranked, Corner mats are 8ϕ @150 c/c along shorter span and 8ϕ @200 c/c along long span, Thickness of slab is 150mm.

Draw plan showing reinforcement and cross section along longer & shorter span.