

UNIT-II

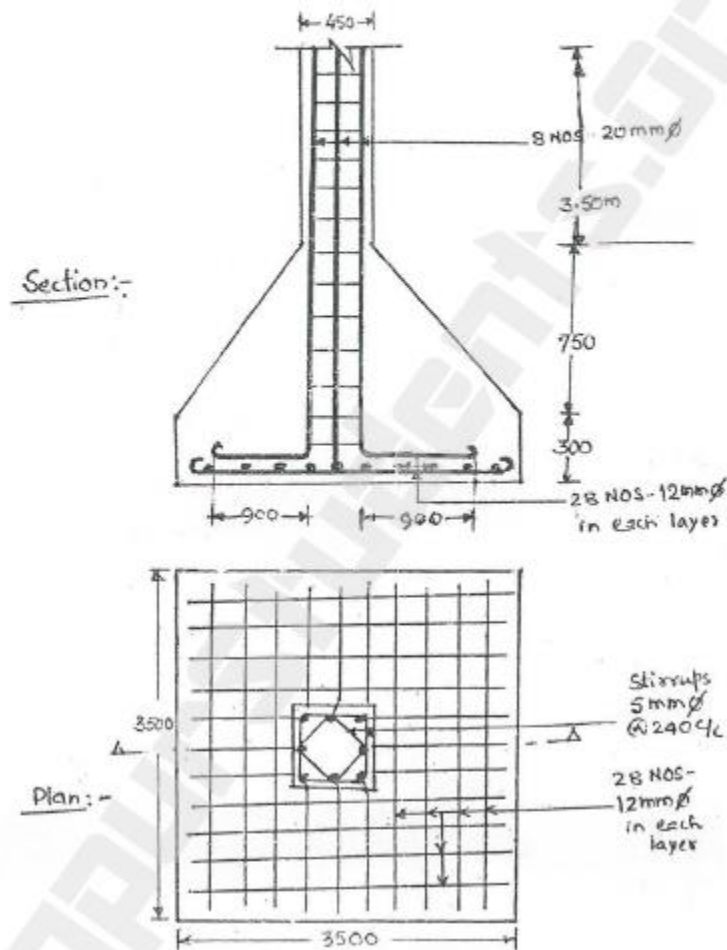
- a) Fig. 1 (Enclosed) shows a building plan and a section of footing of RCC frame structure building Estimate the quantities of following items of work (any two) 8
- i) Earthwork in excavation in footing.
 - ii) RCC work in column and column footing upto ground level.
 - iii) Brickwork in superstructure.

- b) A RCC slab overall size 3300 mm x 6800 mm x 130 mm is provided with 16mm ϕ as main steel reinforcement bent up alternately and placed @ 140 mm c/c. Alternate bars are bent up at 540 mm from the outer edge of the slab. Distribution steel bars are of 6mm ϕ @ 180 c/c. Assume cover as 20 mm throughout. Calculate the quantities of steel reinforcement in bar bending schedule. (All steel bars are of mild steel) 6

- a) Estimate the quantities of following items of work (Any Two) from the given drawing in fig. 1. 8
- i) Filling in Plinth.
 - ii) RCC work in slab.
 - iii) Internal plaster to walls and ceiling.

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- b) Fig. 2 (Enclosed) shows the details of reinforcement of column and column footing. Assume cover as 25mm throughout in column and column footing both. Prepare an estimate with bar bending schedule and calculate the quantity of steel reinforcement. 6



3. a) The accompanying drawing shows a building plan and a typical wall section. Prepare centre line plan and estimate the quantities of the following items of work in standard perform. 8
- 1) Earthwork in Excavation in foundation.
 - 2) Brickwork in foundation up to plinth level.
- b) Workout the quantity of steel reinforcement in bar bending schedule for a RCC Beam of size 230mm x 300 mm x 4000 mm. It has 2 Nos. of 12 mm ϕ straight and 2 nos. 12 mm ϕ bent up at bottom and 2nos. 8 mm ϕ at top M. S. Reinforcement with 6 mm ϕ stirrups @ 200 mm c/c. Assume cover as 25 mm throughout (top, bottom, side). 6

OR

4. a) The accompanying drawing (Q. 3 (a)) shows a building plan and a typical wall section. Prepare centre line plan and estimate the quantities of the following items of work in standard proforma. 8
- 1) Brickwork in superstructure.
 - 2) Internal plaster to walls.
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- b) A RCC Slab, overall size 3300 mm x 6800 mm x 130 mm is provided with 16 mm Φ as a main steel reinforcement bent up alternately and placed @ 140 c/c. Alternate bars are bent up at 540 mm from outer edge of slab. Distribution steel bars are of 6 mm Φ @ 180 c/c. Assume cover as 20 mm throughout. (All steel bars are of Mild steel) Calculate the quantities of Steel Reinforcement 6

(b) Prepare an estimate for R.C.C. slab with the following data :—

- (i) Room size (inside)—4.0 m(length) x 3.0 m (width).
- (ii) Slab thickness—150 mm.
- (iii) Slab is resting over the supports of columns 230 mm x 230 mm and projecting 150 mm throughout all the sides,
- (iv) Slab Reinforcement.
 - (a) Along width :
 - (i) 12 mm ϕ M. S. bars @ 150 mm c/c (straight).
 - (ii) 12 mm ϕ M.S. bars @ 150 mm c/c (cranked)
 - (b) Along length :—6 mm ϕ M.S bars @ 180 mm c/c.
- (v) The main bars are cranked alternately at a distance of 600 mm from the supports,
- (vi) Top and Bottom cover—15 mm.
- (vii) Side covers—20 mm.

Calculate the quantities of :—

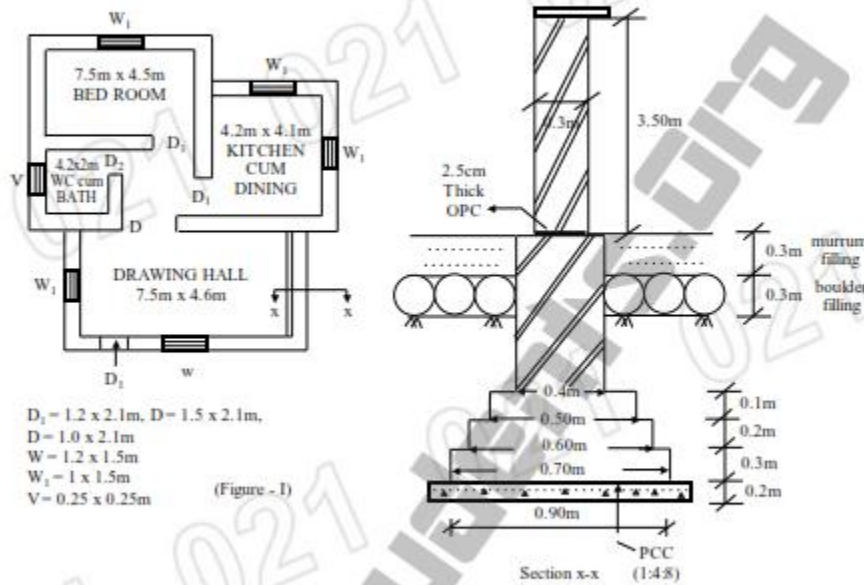
Steel Reinforcement with schedule of Bars.

4. (a) Estimate the quantities for the following items of work for the given Building Plan and section as shown in fig. 1 8
- (i) RCC work in slab.
 - (ii) RCC in columns and footings.
- (b) Workout the quantity of cement concrete (1:2:4) and reinforcement in a RCC Beam with following data :—
- Clear span = 3.60 m
 Bearing = 0.30 m on either side
 Section of the beam = 25 cm x 35 cm (overall)
 Reinforcement = 4 bars (main) 20 mm dia out of which two bars are bent up at 45°
 Anchor bars = 2 nos, 12 mm dia.
 Vertical stirrups 6 mm dia @—150 mm c/c.
- Also write the bar bending schedule. Assume suitable data if necessary. 6

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3. a) Estimate the quantities for the following items of work for the given building plan and typical wall section of figure (I). 8

- i) Earthwork in excavation in foundation Frenches.
- ii) IInd class brick masonry in cm 1:6 in foundation and plinth.



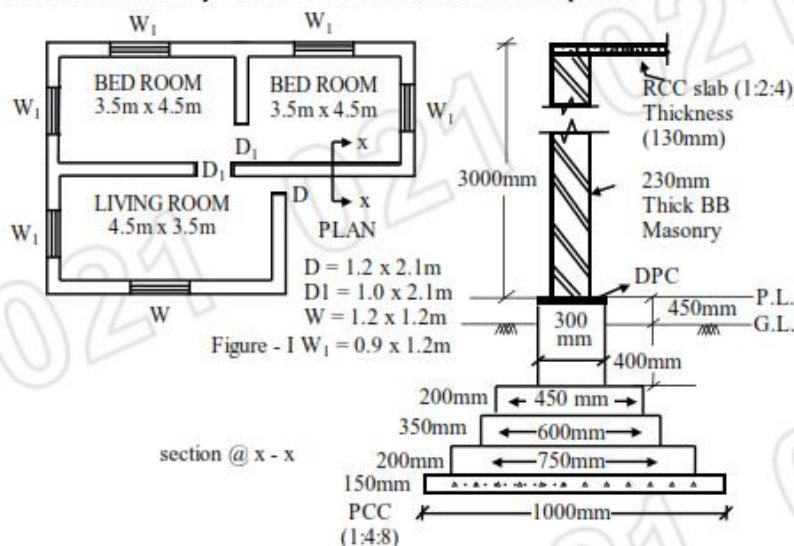
- b) Work out the quantity of steel reinforcement in bar bending schedule for RCC beam of size 230mm x 350mm x 4800mm. It has 2 NOS of 16mm ϕ straight and 2 No's 12 mm ϕ bent up at bottom and 2 No's 10mm ϕ at top M.S. Reinforcement with 6mm ϕ stirrups @200mm c/c. Assume cover as 25mm throughout (top, bottom & side) 6

4. a) The accompanying drawing (Q. 3.a) Shows building plan and typical wall section prepare centre line plan and estimate the quantities of the following item of work. 8
- i) Brick work in super structure.
 - ii) Internal plaster of wall surface.

- b) A RCC slab overall size 3500mm x 7000mm x 125mm is provided with 12mm ϕ as main steel reinforcement bent up alternately placed @150mm c/c. Alternate bars are bent up at 560 mm from the outer edge of the slab. Distribution steel bars are of 6mm ϕ @200mm c/c. Assume cover as 20mm throughout. Calculate the quantities of steel reinforcement in bar bending schedule. 6

3. a) Estimate the quantities for the following items of work for the given building plan & typical wall section in figure (I). 8

- i) Earthwork in excavation in foundation trenches.
- ii) IInd class brick masonry in CM 1 : 6 in foundation and plinth.



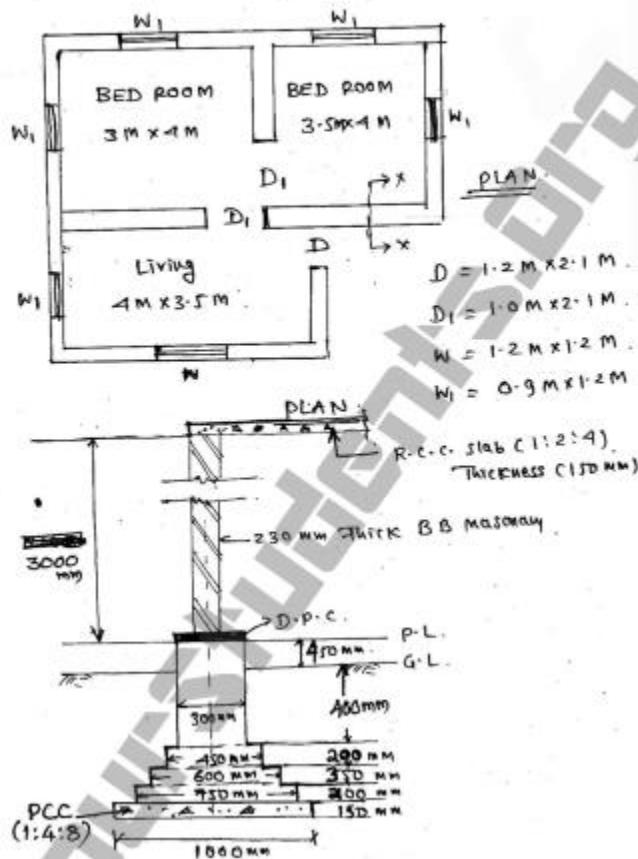
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- b) A RCC simply supported slab of clear size $3.3\text{m} \times 6.6\text{m}$ is Reinforced with $10\text{mm}\phi @ 120\text{mm c/c}$ alternately bent up. Distribution bars are $6\text{mm}\phi @ 140\text{mm c/c}$. Thickness of slab is 120mm . Bearing of slab is 150mm . Calculate the total quantity of reinforcement. Also prepare schedule of bar. 6

OR

4. a) As per figure (I) showing plan & section calculate 8
- i) IInd class brick masonry in CM 1 : 5 in super structure.
 - ii) 12mm thick internal plaster in CM 1 : 4 for ceiling and walls.
- b) A RCC simply supported beam of size $350\text{mm} \times 650\text{mm}$ is reinforced with 4 No's of $20\text{mm}\phi$ bar. Main bar are placed in one row & two bent up. Two anchor bars of 12mm diameter are provided at top 8mm diameter stirrups are provided at 150mm c/c . The overall beam length is 6.2m . Calculate the total quantity of steel required show bar schedule. 6

3. a) Estimate the Quantities for the following items of work for the given Building plan & typical wall section in figure (I) 8
- i) Earthwork in excavation in foundation trenches.
 - ii) IInd class brick masonry in cm 1 : 6 in foundation & plinth.



- b) A R.C.C. simply supported slab of clear size $3.1\text{m} \times 6.3\text{m}$ is Reinforced with $10\text{mm}\phi @ 120\text{mm c/c}$ alternately bent up. Distribution bars are $6\text{mm}\phi @ 130\text{mm c/c}$. Thickness of slab is 130mm . Bearing of slab is 15cm . Calculate total Quantity of Reinforcement. Also prepare schedule of bar. 6

OR

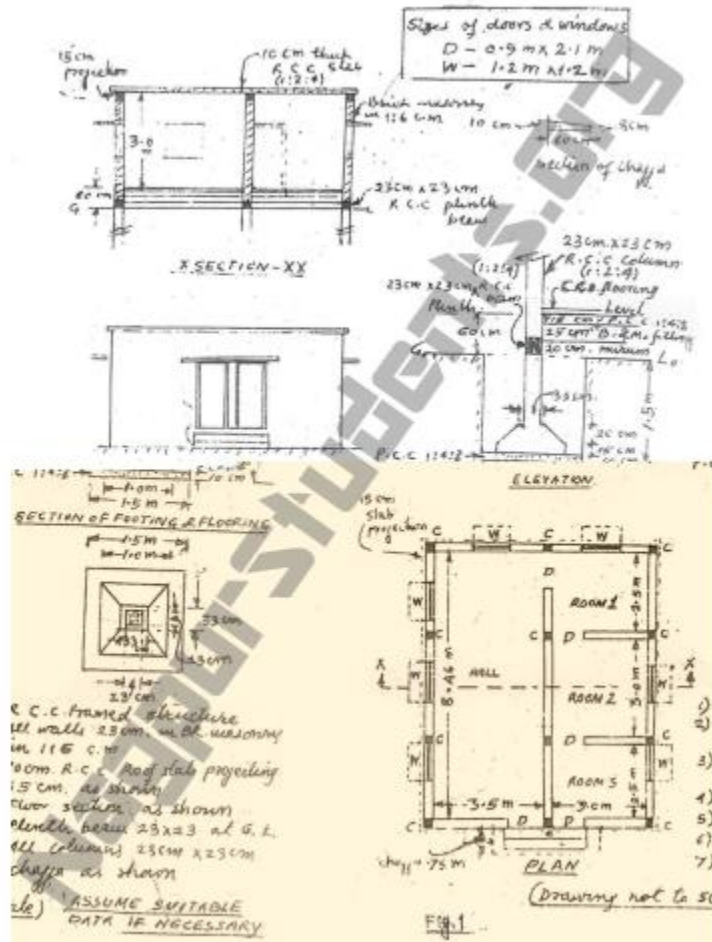
4. a) As per figure (I) showing plan & section. Calculate 8
- i) IInd class brick masonry in cm 1 : 5 in super structure.
 - ii) 12 mm thick internal cement plaster in cm 1 : 4 for ceiling & walls.

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- b) A R.C.C. simply supported beam of size 295 mm x 645 mm is reinforced with 4 Nos. of 20 mm diameter. Main bars are placed in one row & two bent up. Two anchor bars of 12 mm diameter are provided at top 8 mm diameter stirrups are provided at 140 mm/cc. The overall beam length is 6m. Calculate the total quantity of steel required show bar bending schedule. 6

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 - Brickwork in superstructure.

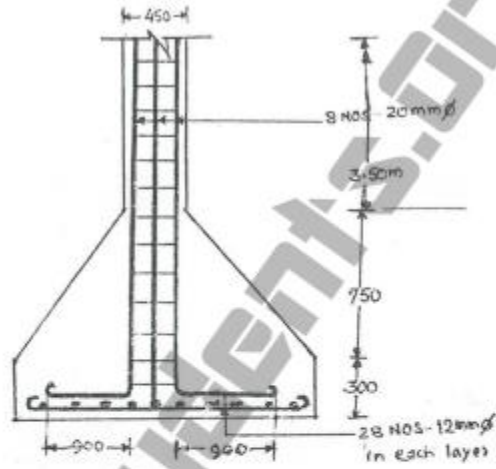
- b) A RCC slab overall size 3300 mm x 6800 mm x 130 mm is provided with 16mm ϕ as main steel reinforcement bent up alternately and placed @ 140 mm c/c. Alternate bars are bent up at 540 mm from the outer edge of the slab. Distribution steel bars are of 6mm ϕ @ 180 c/c. Assume cover as 20 mm throughout. Calculate the quantities of steel reinforcement in bar bending schedule. (All steel bars are of mild steel) 6



4. a) Estimate the quantities of following items of work (Any Two) from the given drawing in fig. 1. 8
- Filling in Plinth.
 - RCC work in slab.
 - Internal plaster to walls and ceiling.
- b) Fig. 2 (Enclosed) shows the details of reinforcement of column and column footing. Assume cover as 25mm throughout in column and column footing both. Prepare an estimate with bar bending schedule and calculate the quantity of steel reinforcement. 6

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Section:-



Plan:-

