

Exam.		Back	
Level	BE	Full Marks	30
Programme	BCE	Pass Marks	12
Year / Part	II / II	Time	3 hrs.

Subject: - Building Drawing (AR 556)

- ✓ Candidates are required to give their answers in their own words as far as practicable.
- ✓ Attempt All questions.
- ✓ The figures in the margin indicate Full Marks.
- ✓ Necessary figures are attached herewith.
- ✓ Assume suitable data if necessary.

1. The area of plot is 100 sq.m. and permissible ground coverage is 70%. Permissible built-up area is 175 sq.m. Calculate the FAR for the plot. Calculate the number of storeys. [2]
2. What is the angle of light plane as per bye-laws? If road width (ROW) is 25 metre and set back is 1.50 metre. Calculate permissible maximum height of the building. [2]
3. Draw hatching pattern for the following building materials. Use 6 cm × 6 cm box for each pattern. (i) Concrete section (ii) Stone section (iii) Earth section (iv) Wood grain [2]
4. Redraw the given (Figure 1) frame structure building floor plane in Scale = 1:50. Maintained line weight of building plan and other drafting techniques. [12]
5. Redraw section of staircase as shown in Figure 2 with detail dimensions in 1:20 scale with appropriate hatching. [6]
6. Draw detail plan and section of an isolated footing of size 7'×7', column size 14"×14", depth 5'-6", column reinforcement 20 diameter 8 numbers, plinth height 3' in the scale 1" = 1'. Assume necessary dimensions. [6]

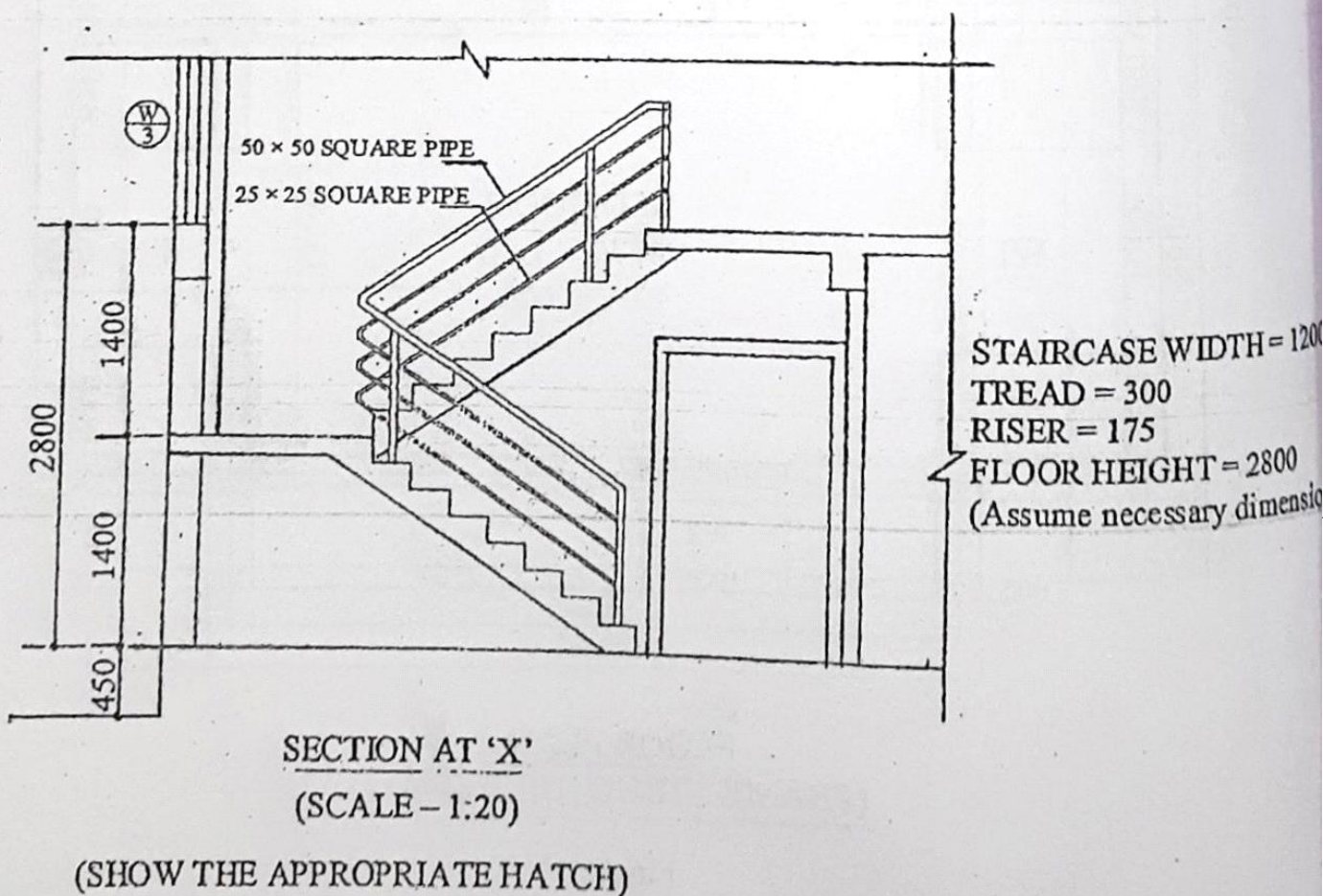
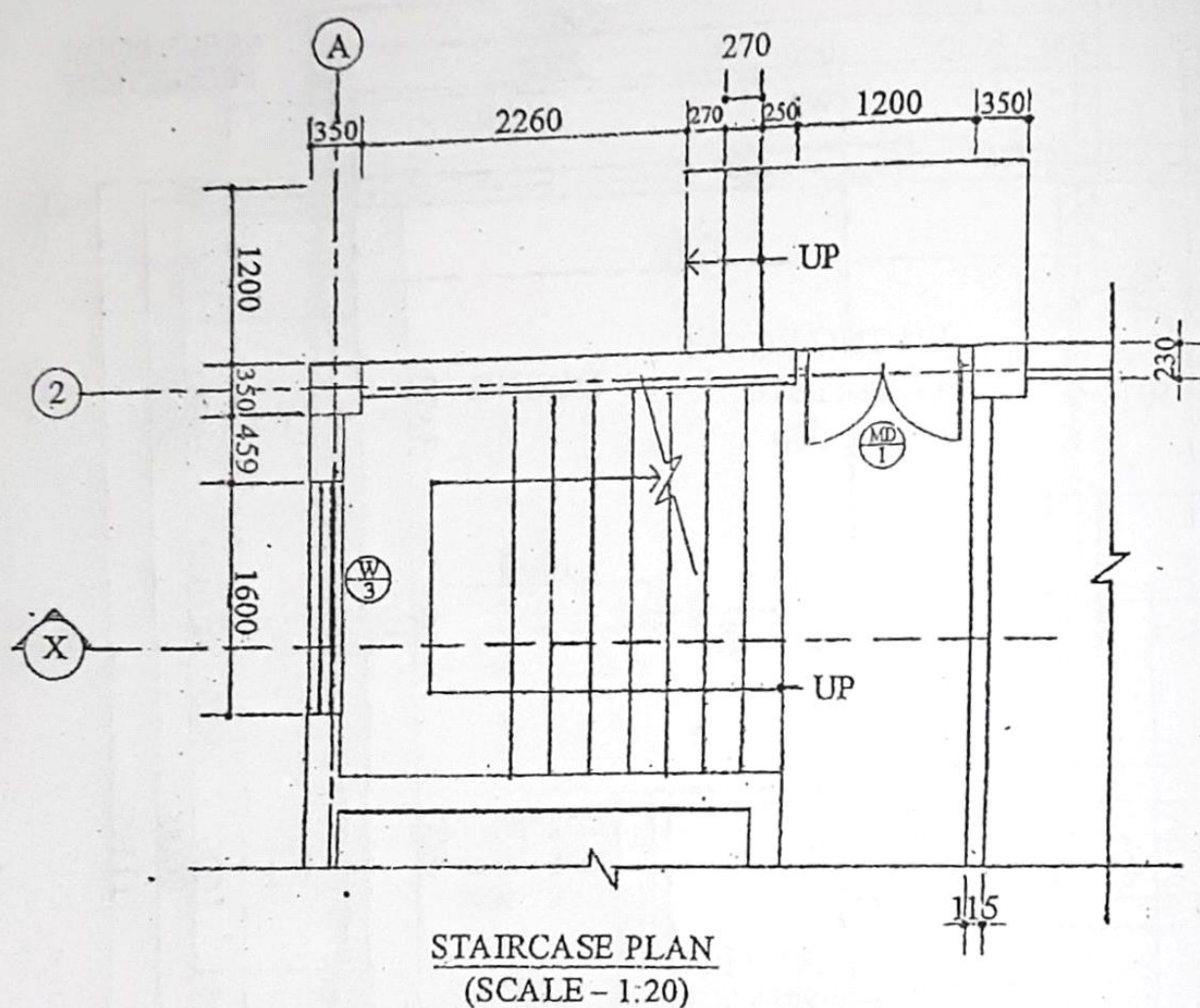


Figure 2

Exam.	Back		
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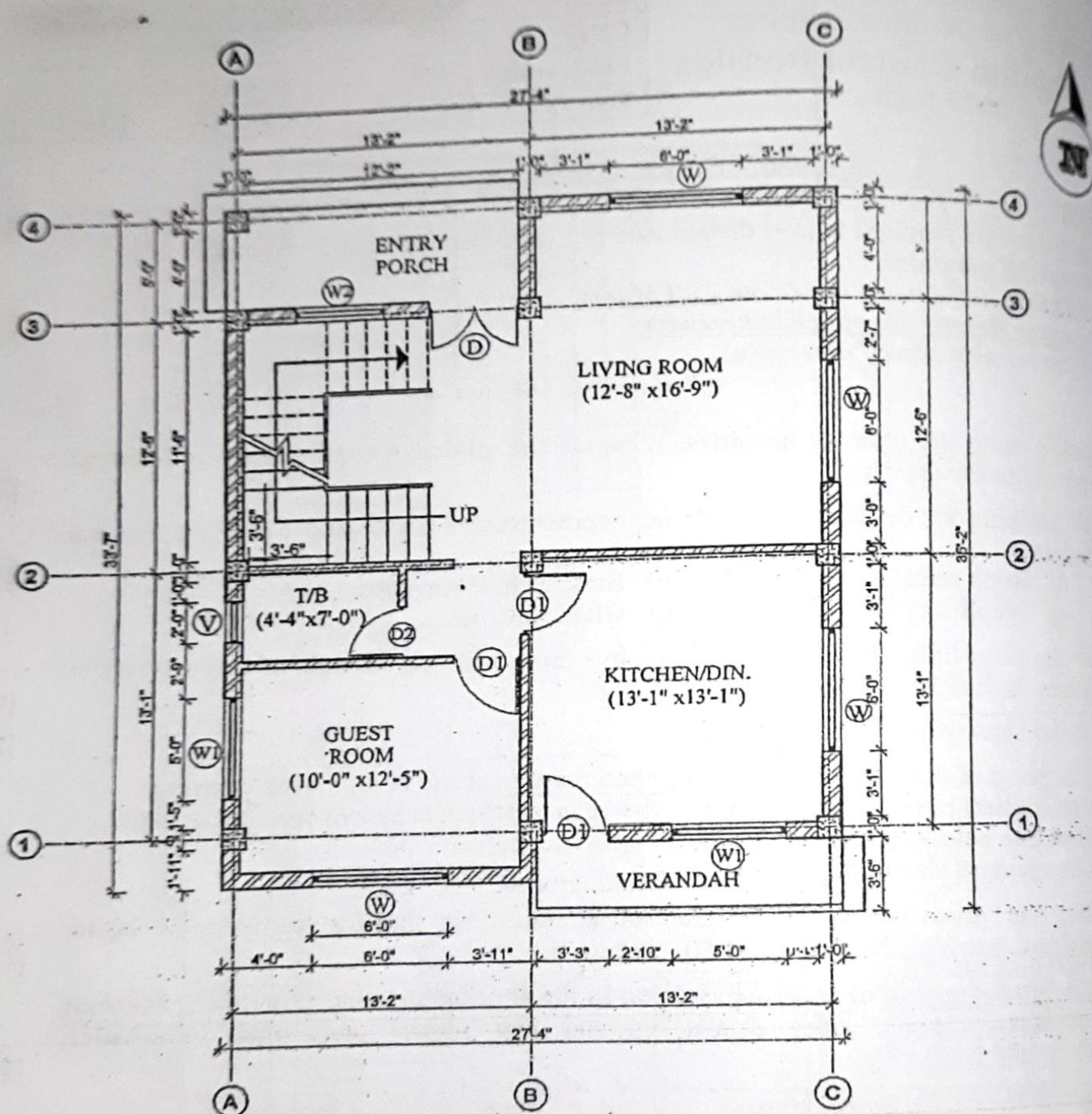
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- Mention about the types of drawings. What are the minimum requirements of drawings for Municipality drawing? [2]
- Draw hatching for the following materials representation. Use 5 cm × 5 cm box for each materials. [2]
 - Brick section
 - Rubble stone elevation
 - Wood section
 - Glass elevation
- Draw figure of light plane as per building bye-laws. Mention the right of way (ROW) to constrain the height of building. [2]
- Fill in the gaps with appropriate word: [2]
 - The name of drawing send to construction purpose at site isdrawing.
 - Exit (outlet) pipe from sink and wash basin in a kitchen is known aspipe.
 - Structure below the ground is called.....
 - The standard size of Nepali brick is.....
- Redraw the given ground floor plan of structure by showing complete 3 layers dimensions, hatching etc. (scale :- 1:50) (Figure I) [12]
- Draw a detail drawing of staircase as given in the attached drawing (Figure II). Mention the necessary levels, floor details (ground and upper) and other information (scale:- 1:10 / 1:20) [10]

Description	Door / Window Schedule	
Wall thickness: 230 (Ext/Int)	Symbol	Width
Plinth height: 450	DW1	2600
Floor height: 4550	D1	1000
Slab thickness: 125	D2	900
Plinth beam: 230 × 230	D3	750
Floor beam: 230 × 350	W1	2000
Riser height: 175	W2	1800
Tread width: 230	W3	900
Stair width: 1000		
Landing width: 1000		

Note: All dimensions are in mm.



GROUND FLOOR PLAN
(STEP: TREAD - 11", RISER - 6")

Figure I

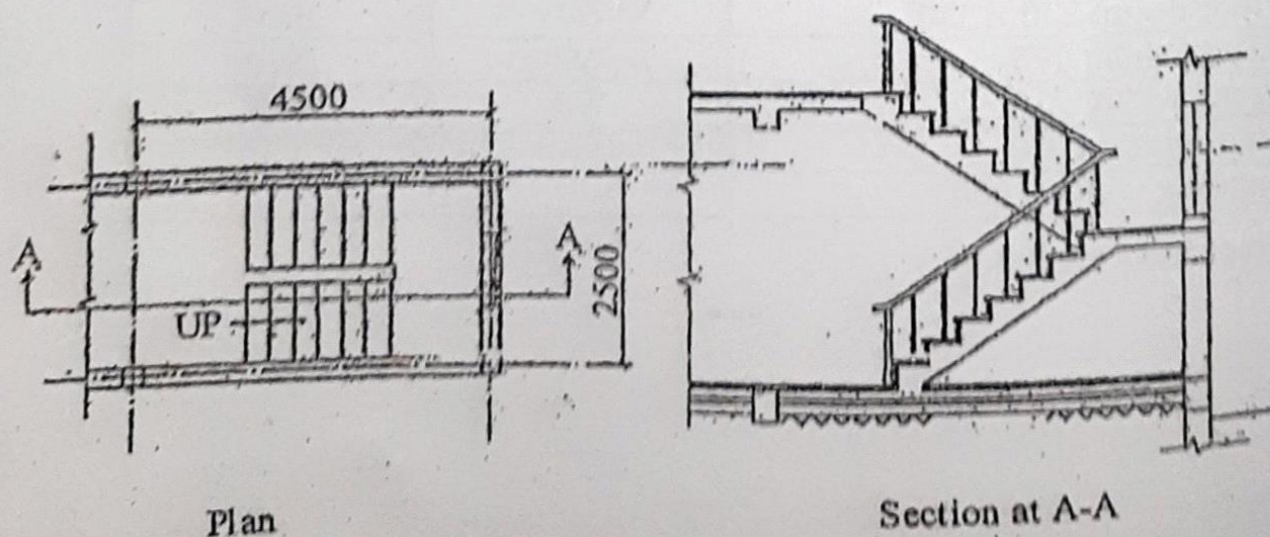


Figure 4 6

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INSTITUTE OF ENGINEERING
Examination Control Division
2078 Chaitra

Exam.	Regular		
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1. List out the different components of building including sub structure and super structure. [2]
2. Fill in the blanks. [2]
 - a) Symbol of sub distribution box in electrical layout plan is.....
 - b) As per NBC, minimum sill height in building shall be.....
 - c) The height of parapet wall should be.....
 - d) Width of door for bathroom is.....
3. Draw hatching pattern of the following material in 6cm × 6cm box: [2]
 - a) Concrete in section
 - b) Stone in section
 - c) Brick in section
 - d) Tile in plan
4. Calculate the permissible built up area for the plot 6 anna. The plinth area of the building is 950 sqft. The ground coverage is 60% and FAR is 1.75. [2]
5. Explain ROW and set back along with drawing. [2]
6. Draw Ground floor plan of the building in 1:50 scale as shown in Figure A. Follow the details as given below: [14]

Column size : 350 × 350

Thickness of wall: 230 and 110 (as show in figure)

Main Door MD1: 1200 × 2100

Door D1: 900 × 2100

Door D2: 750 × 2100

Window W1: 1800 × 1200

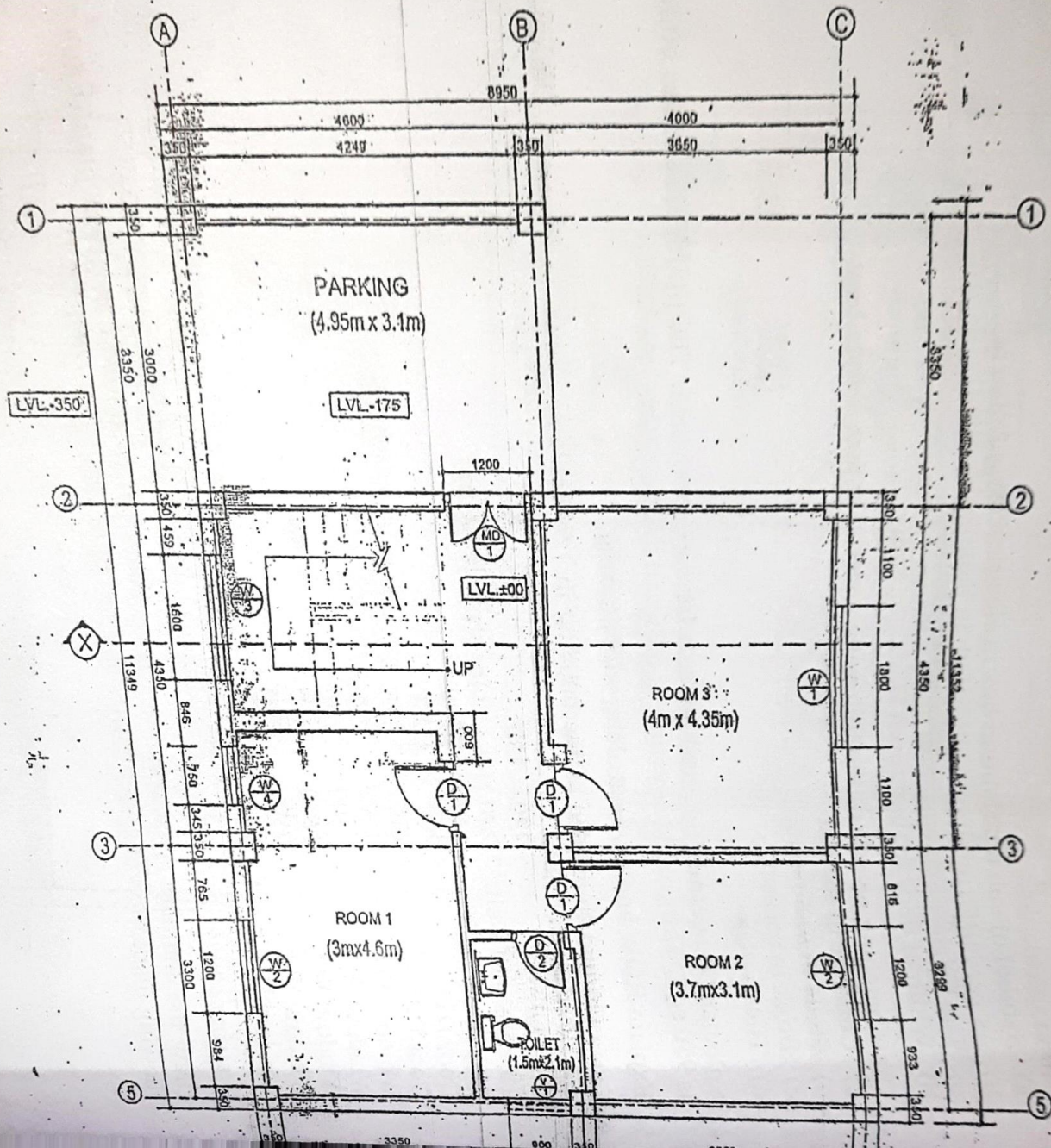
Window W2: 1200 × 1200

Window W3: 1600 × 1200

Window W4: 750 × 1200

Window V1: 900 × 450

Drawing should have three layers dimension with proper hatch.
7. Draw the sanitary layout plan of Toilet bathroom mentioned in given plan (Figure A) showing inspection chamber, waste and soil pipe using scale of 1" = 1' [6]



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2078 Poush

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1. Draw the symbols of following. [2]

- a) One pole two-way switch
- b) Void
- c) Stone in section
- d) Inspection chamber

2. Define light plane. How many stories of building can be permitted for construction from light plane point of view if the right of way of road is mentioned as 20 ft and setback distance as 5 ft. [1+2]

3. Redraw the provided floor plan of building (Figure 1) using appropriate drawing techniques with description given below. Use scale 1" = 4'-0". [14]

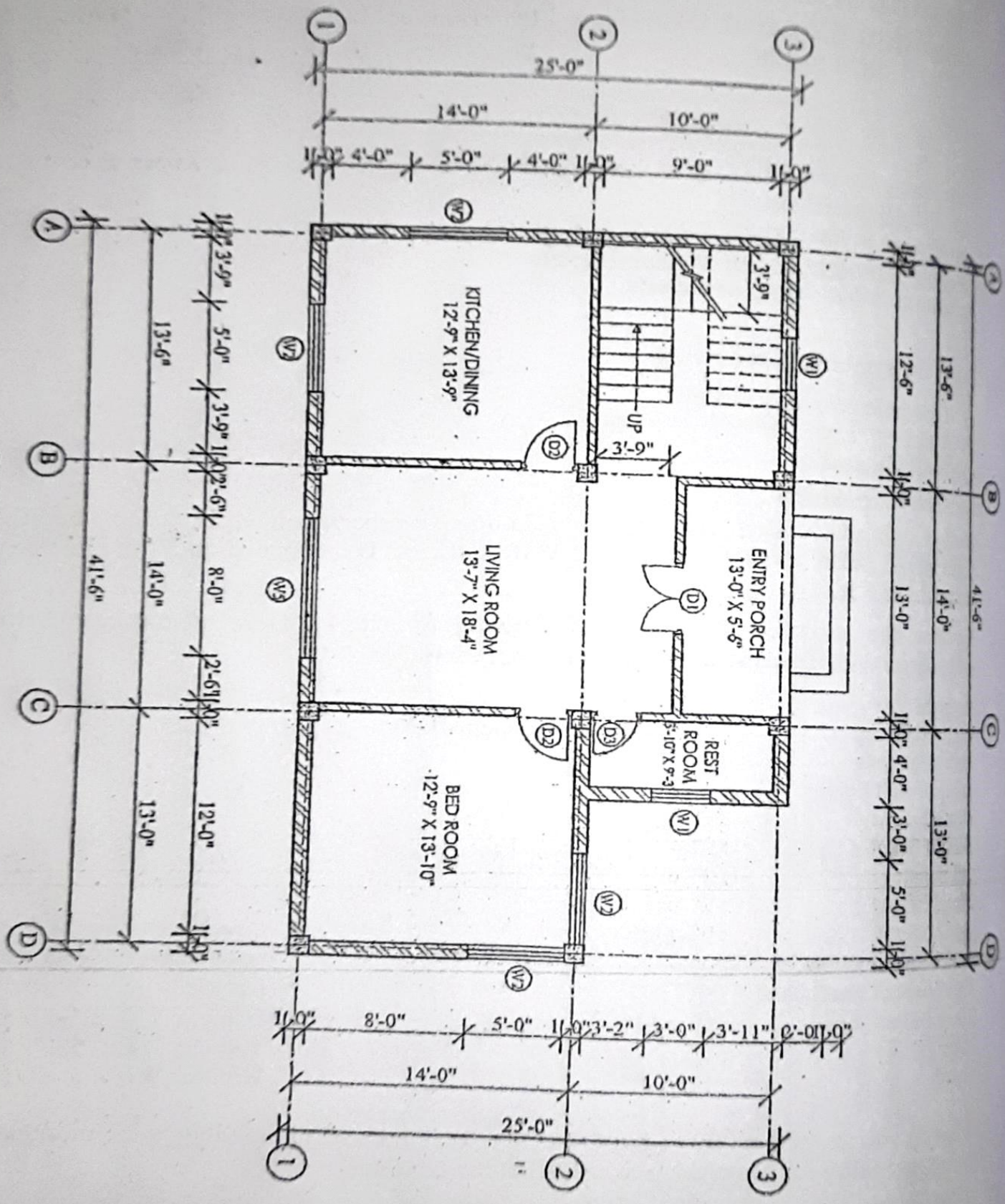
Column size	: 12" × 12"
Wall thickness	: 9" (External), 4" (Internal)
Slab thickness	: 5"
Parapet wall height	: 3' -3"
Plinth height	: 1' -6"
Size of beam	: 9" × 14"
Sill height	: 2' -6"
Lintel height	: 7' -6"
Floor height	: 9' -11"
Thickness of sill band	: 3"
Thickness of lintel band	: 5"
Size of plinth beam	: 9" × 12"
Riser	: 7"
Tread	: 11"

Door D1	: 4'-0" × 7'-6"
Door D2	: 3'-0" × 7'-6"
Door D3	: 2'-6" × 7'-6"
Window W1	: 3'-0" × 5'-0"
Window W2	: 5'-0" × 5'-0"
Window W3	: 8'-0" × 5'-0"

4. What do you understand by as-built drawing? List out a set of drawings to be submitted to the municipality for permission to construct the building. [1+2]

5. Draw the plan and the section of footing of a column given in Question No. 3 in scale 1" = 1'-0" with following information. [8]

- The size of footing is 5'-6" × 5'-6" and depth of footing is 5'-6" below the GL.
- 8 numbers of 16 mm ϕ vertical bars in column and 8 mm ϕ stirrups @ 5" c/c.
- 12 mm ϕ bars on footing jali @ 6" c/c both ways
- Assume other necessary data, if necessary.



GROUND FLOOR PLAN

Figure 1

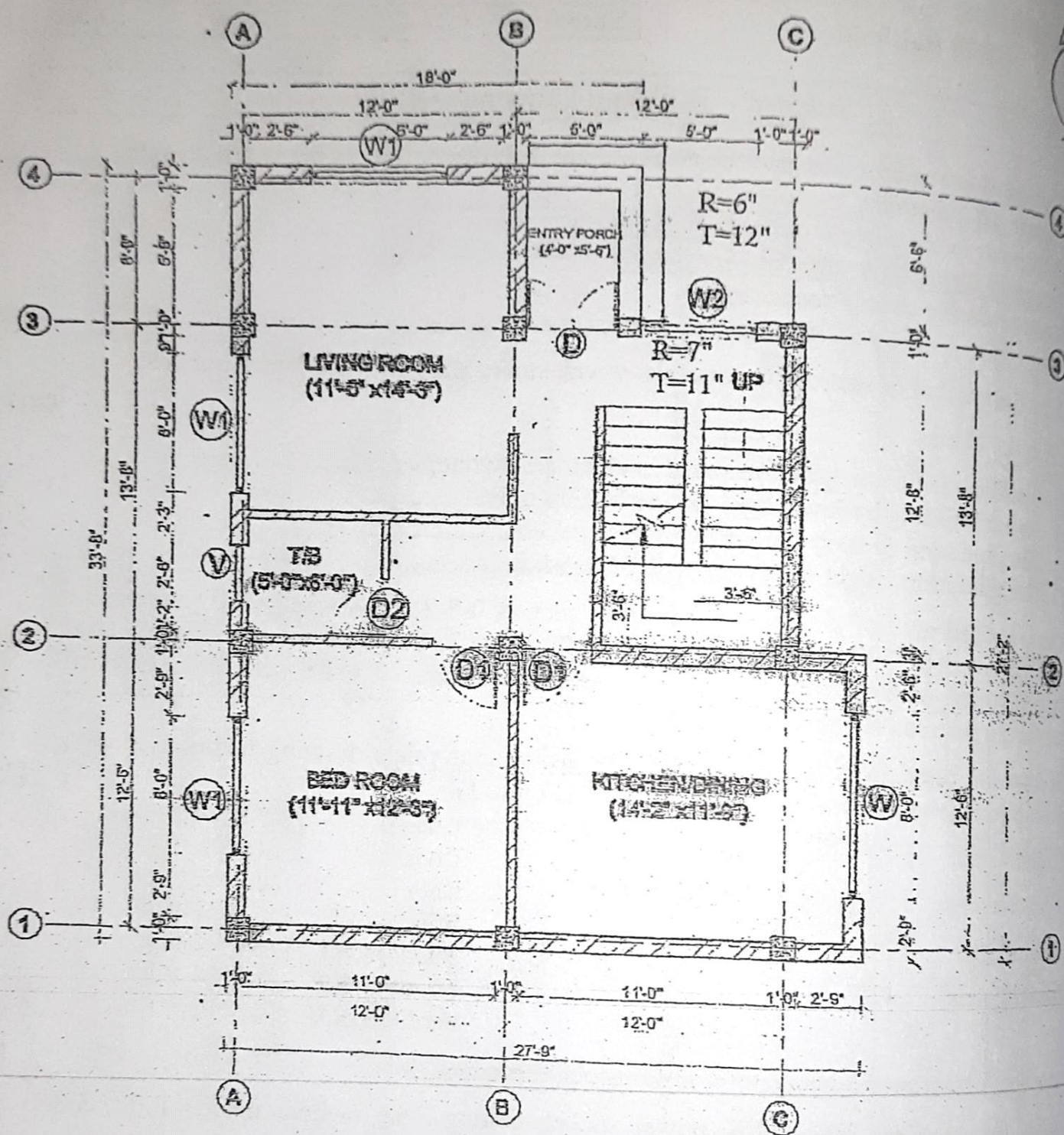
Exam.	Part		
Level	BE	Full Marks	30
Programme	BCE	Pass Marks	12
Year / Part	II / II	Time	3 hrs.

Subject: - Building Drawing (AR 556)

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1. Draw the symbol of section of materials: wood, stone, glass, earth in 4cm×4cm box. [2]
2. Fill in the blanks. [4×0.5]
 - a) Symbol of main distribution board in electrical layout plan is
 - b) As per building by-laws, light plane of building is
 - c) The pipe used to carry the waste water is called
 - d) The minimum height of parapet wall of building is
3. The proposed area of plot in a commercial zone is 0-8-2-2 (R-A-P-D) and permissible ground coverage is 60% with permissible FAR value 3. Calculate the permissible total built up area and maximum number of stories that can be built with utilization of maximum permissible plinth area. [4]
4. Redraw the provided floor plan of building using appropriate drawing techniques with description given below. Use scale 1" = 4'-0". (Figure 1) [14]

Column size : 12"×12"	Door D : 4'-0" × 7'-6"
Wall thickness : 9" (External), 4" (Internal)	Door D ₁ : 3'-0" × 7'-6"
Riser of stair : 7"	Door D ₂ : 2'-6" × 7'-6"
Tread of stair : 11"	Window W : 8'-0" × 4'-6"
	Window W ₁ : 6'-0" × 5'-0"
	Window W ₂ : 5'-0" × 5'-0"
	Ventilation V : 2'-6" × 2'-0"
5. How does measured drawing differ from as built drawing? [2]
6. Draw the electrical layout plan (power socket, ceiling light, switch, mirror light) for toilet/bathroom of given plan (Figure 1) using scale of 1:24. [6]



FLOOR PLAN

Figure 1

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Examination Control Division
2077 Chaitra

Exam.	Regular		
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Year / Part	II / II	Time	3 hrs.

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1. Draw the hatching symbol for the following materials in the box of 100×100mm. Scale 1:2. [2]

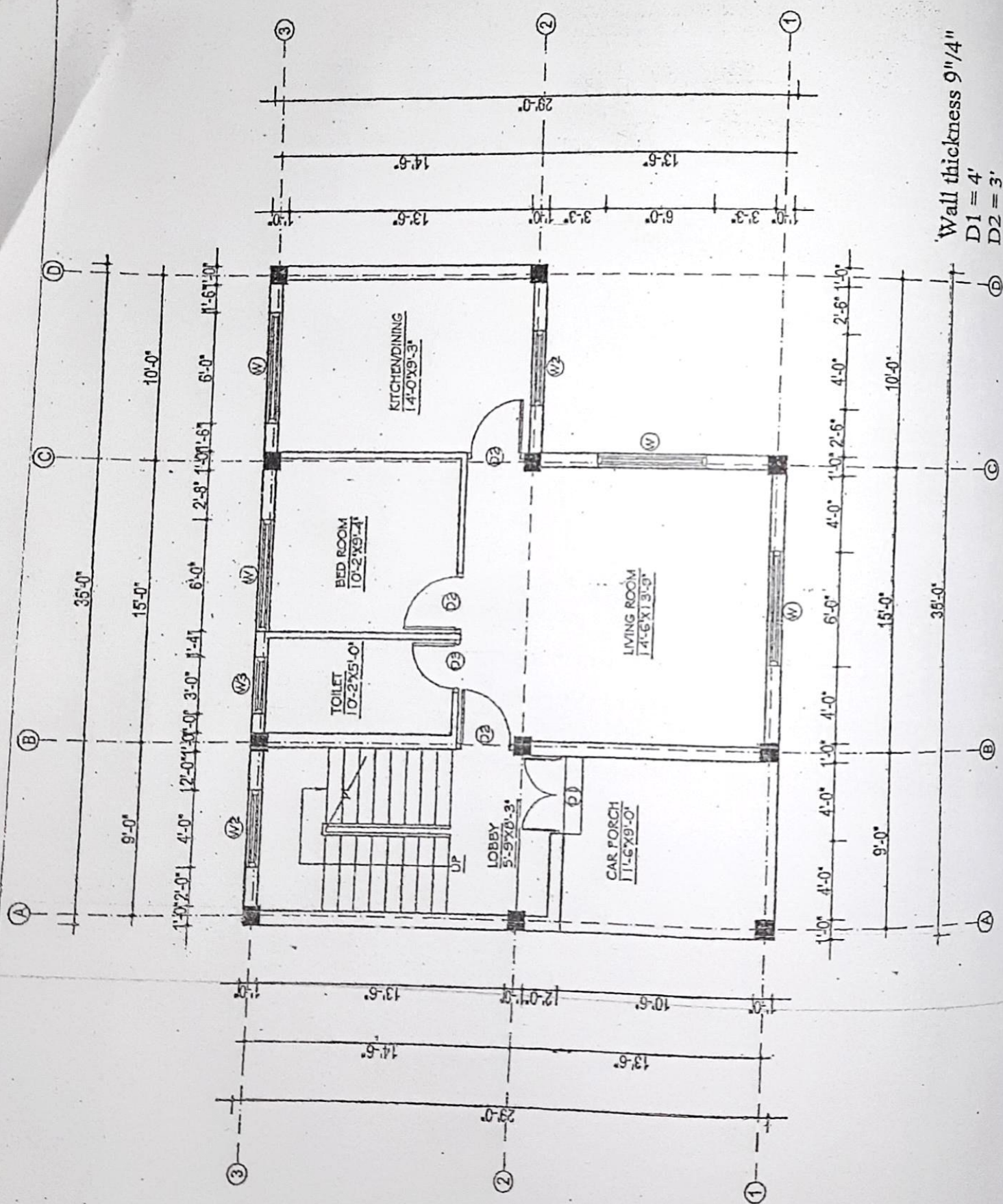
- a) Wood section
- b) Sand or Plaster
- c) Concrete in Section
- d) Brick section

2. Define the terms: [2]

- a) Light plane and ROW as per building bye-laws.
- b) Floor Area Ratio (FAR) and permissible ground coverage.

3. Redraw the given ground floor plan as shown in figure in the scale 1"=4'-0". [14]

4. Draw plan and section of one footing of the given building plan showing all required information with complete dimensions assuming foundation pad of 1500mm×1500mm×1500mm. Assume suitable data. Scale (1:10). [12]



Wall thickness 9 3/4"
D1 = 4'
D2 = 3'
D3 = 2'6"

GROUND FLOOR PLAN
AREA: 880 SQ. FT.
STAIRS: 4'-0" WIDE

TRIBHUVAN UNIVERSITY
INSTITUTE OF ENGINEERING
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2076 Baisakh

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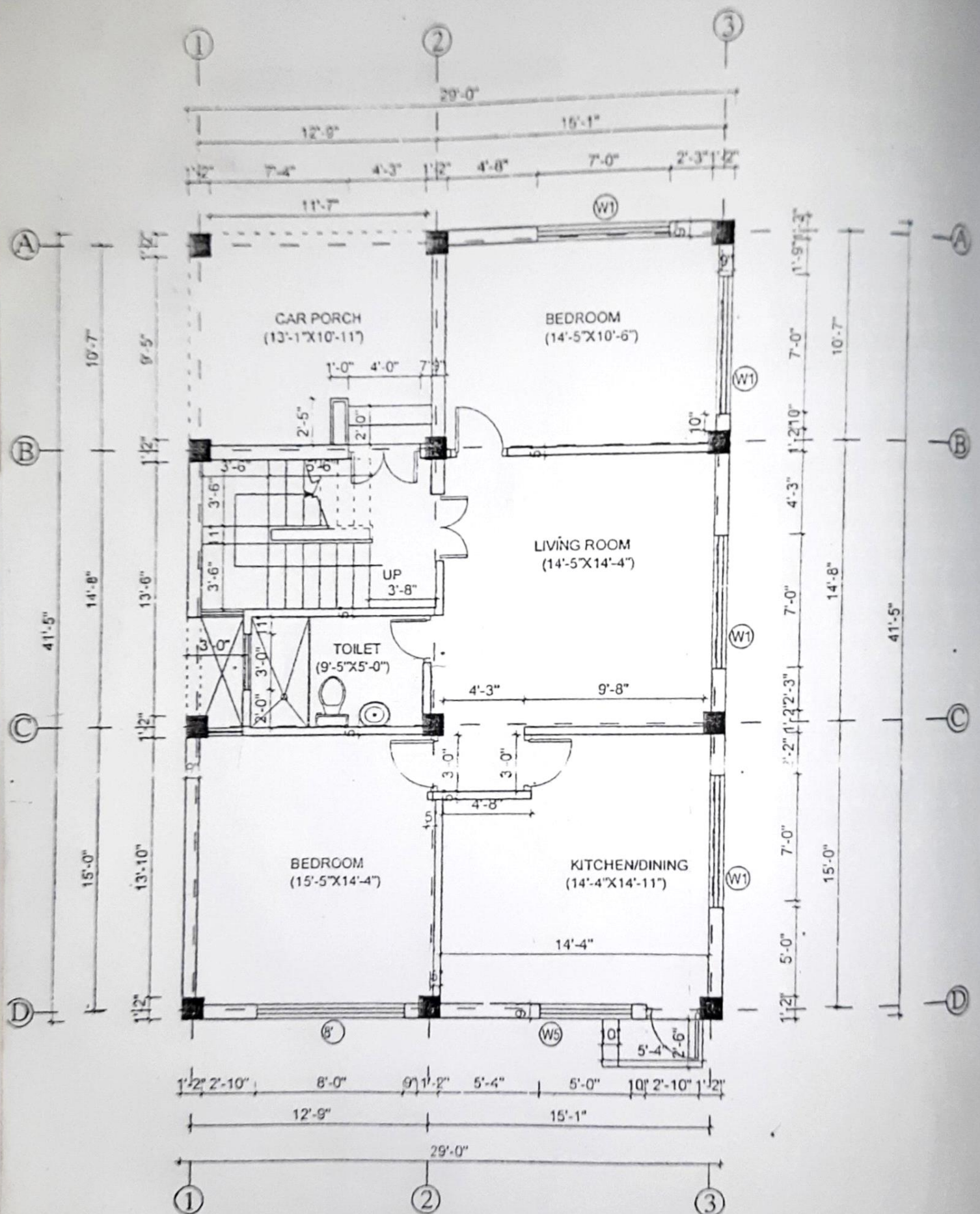
Subject: - Building Drawing (AR 556)

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- ✓ Attempt All questions.
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1. Define grid line and floor height of a building. [2]
2. Draw Architectural conventional symbol of the following: [2]
 - i) Solid concrete block ii) Natural ground (Earth) iii) Insulation iv) Glass section
 Use 6cm x 6cm square room of each symbol.
3. If land area of a plot is 1369 sq. ft., ground coverage is 70% and FAR is 2.25. Calculate the total built up area for the plot. [2]
4. Redraw the given ground floor plan (figure 1) including walls, columns, grid lines, dimensions, hatching and all complete information. (Scale 1"=4'-0") [12]
5. Draw typical longitudinal and cross section of beam detail of Grid AA of given plan (figure 1) (Beam width 9" and height 1'4") [6]

Throughout bars 2nos-16mm dia bars in both lower and upper fringe (4-16)

Extra bar 1nos-12mm dia bar on both top and bottom fringe (2-12). (Scale 1"=1'-0")
6. Redraw the toilet plan only of (figure 1) and arrange electrical fixtures layout (light points and power points fixtures) in given plan. (Scale 1"=2'0") [6]



GROUND FLOOR PLAN
FIG 1

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Subject: - Building Drawing (AR556)

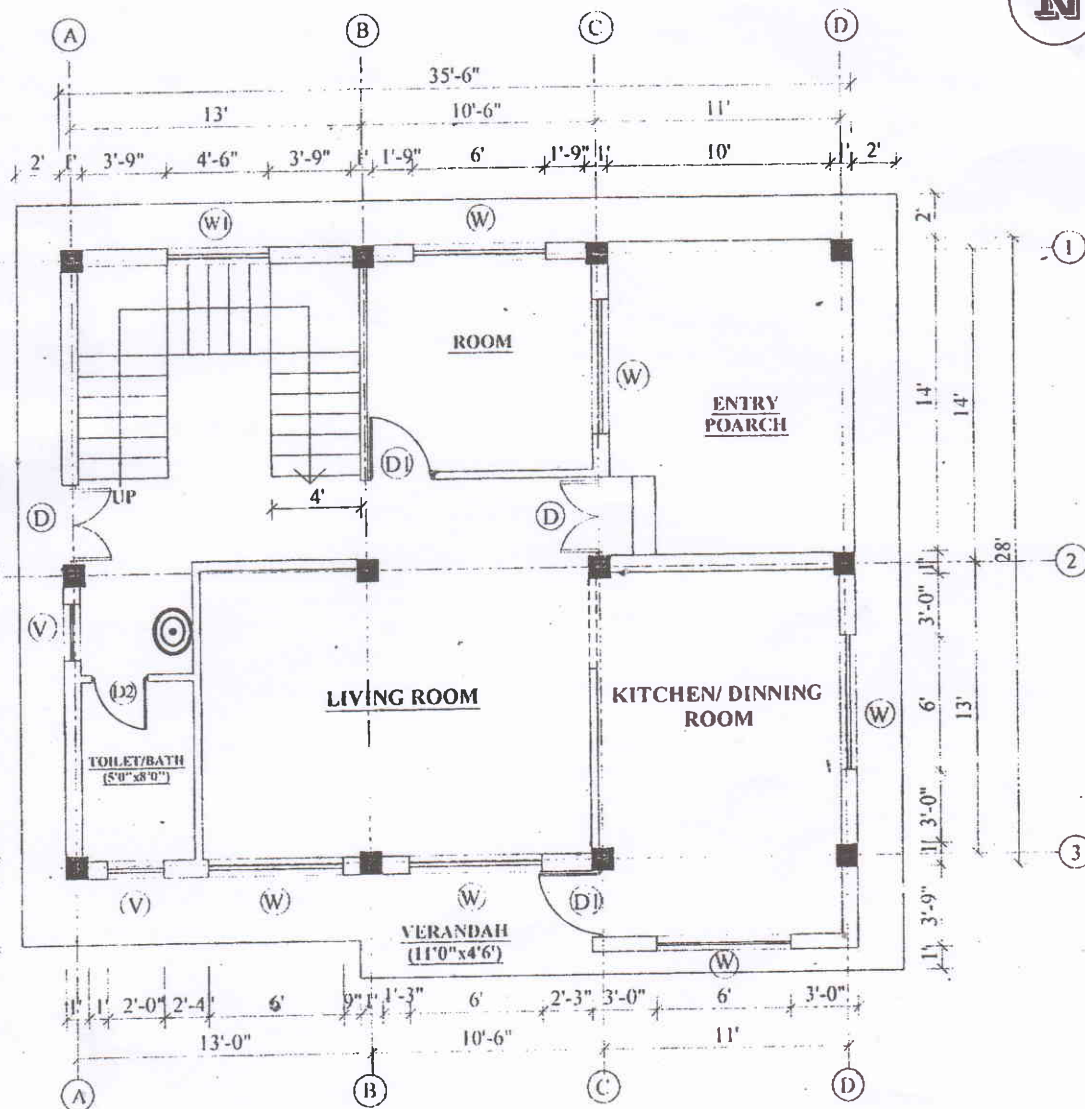
- ✓ Candidates are required to give their answers in their own words as far as practicable.
- ✓ Attempt All questions.
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- ✓ Necessary figures are attached herewith.
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1. Mention the different elements in superstructure of a building. [2]
2. Draw hatching for the following material representation. Use 5 cm × 5 cm area for each hatching [2]
 - i) Glasselevation
 - ii) Concrete elevation
 - iii) Stonesection
 - iv) Gravel elevation
3. Draw the figure of light plane as per building by-laws. Mention the right of way (row) to constrain the height of the building. [2]
4. Redraw the provided floor plan of building as shown in figure below using appropriate drawing techniques with description given below. Use scale 1" = 4'-0". [12]

Column size	: 12" x 12"
Wall thickness	: 9" (External), 4" (Internal)
Slab thickness	: 5"
Parapet wall height	: 3'
Plinth height	: 1'-6"
Size of beam	: 9" x 14"
Sill height	: 3'
Lintel height	: 7'-6"
Floor height	: 10'-5"
Thickness of sill band	: 3"
Thickness of lintel band	: 5"
Size of plinth beam	: 9" x 9"
Riser	: 7"
Tread	: 11"

Door D1	: 3'-6" x 7'-6"
Door D2	: 3'-0" x 7'-6"
Door D3	: 2'-6" x 7'-6"
Window W	: 6'-0" x 4'-6"
Window W1	: 4'-6" x 4'-6"
Ventilation V	: 2'-0" x 2'-0"

5. Draw the plan and the section of footing of a column given in question no.4 in scale 1" = 1'-0" with following information. [6]
 - The size of footing is 5'-0" × 5'-0" and depth of footing is 5'-0" below the GL
 - 8 numbers of 16 mm ϕ vertical bars in column and 8mm ϕ stirrups @5"c/c
 - 12mm ϕ bars on footing jali @6"c/c both ways
 - Assume other necessary data, if necessary
6. Draw elevation and vertical and horizontal detail section of typical wooden panel door. The size of door is 3'6" × 7'6" double panel door. [6]
 - Elevation: (Scale 1"=2'-0")
 - Detail sections: (Scale 1"=1'-0")



(AREA= 1040.0 SQ. FT., STEP TREAD = 12", RISER = 6")

07 TRIBHUVAN UNIVERSITY
INSTITUTE OF ENGINEERING
Examination Control Division
2074 Bhadra

Exam.	Regular		
Level	BE	Full Marks	30
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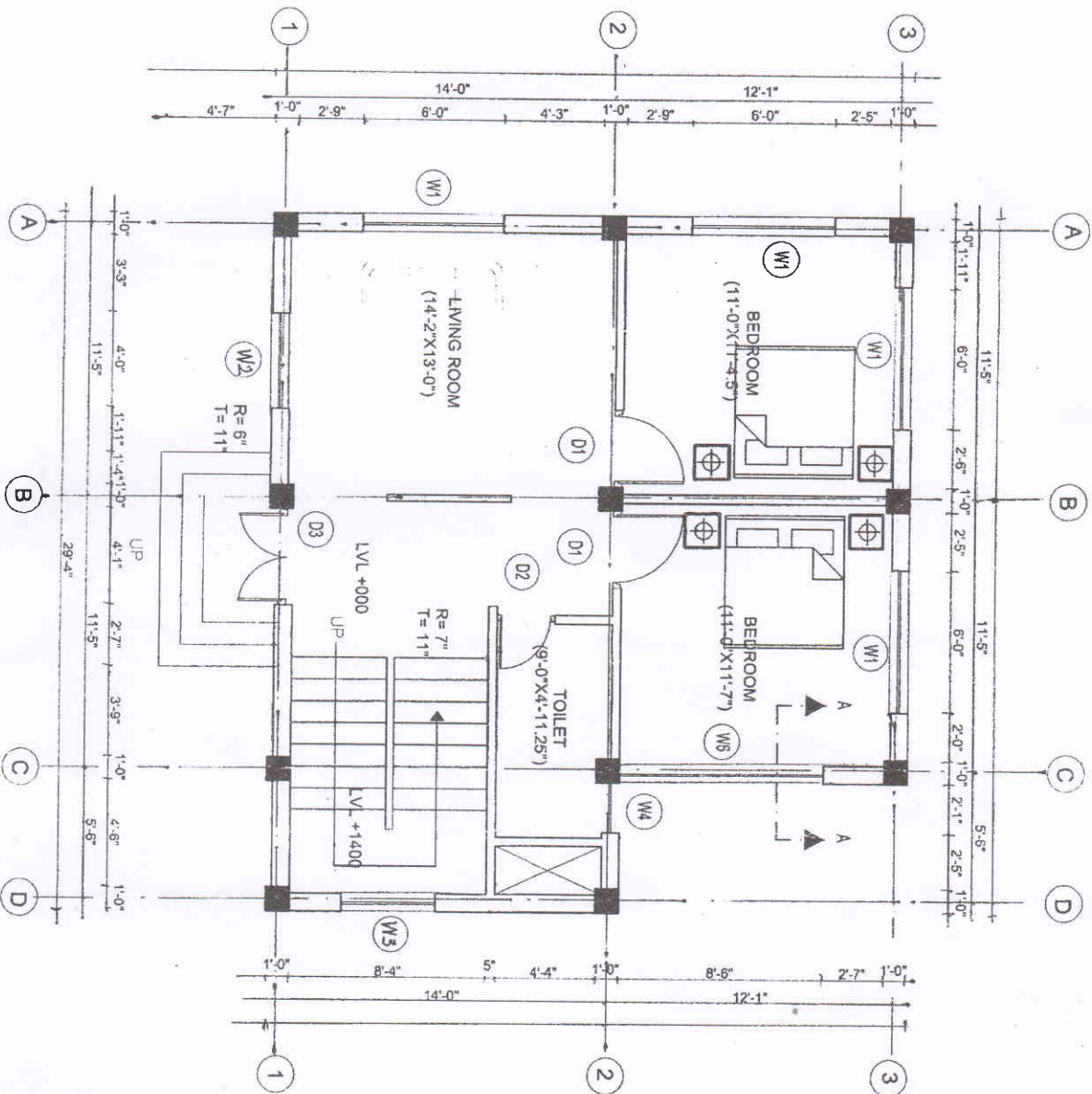
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1. Calculate the permissible built up area and maximum no. stories if the plot area is 0-5-3-1, permissible ground coverage is 60% and floor area ratio (FAR) is 1.5. [2]
2. Draw a light plane and right of way (ROW) as per building bye-laws. [2]
3. Fill in the blank spaces: [2]
 - a) Beam above the opening is called.....
 - b) Minimum width of the stair in residence is.....
 - c) The size of the single shutter wooden frame is.....
 - d) The standard size of Nepali brick is.....
4. Redraw the given Floor Plan with appropriate drafting techniques with all necessary information. Use scale 1" = 4' - 0". [12]
5. Draw a Wall Section through foundation to parapet level at A-A shown in given plan of two storied building. Mention the levels, floor details (ground and upper), Toe wall detail and walls with 12mm plaster on both sides. Use scale 1:24 [12]

Descriptions:

1. Column size : 12" x 12"
2. Wall thickness (ext./int.): 9"/4"
3. Plinth height : 1'-6"
4. Sill Height : 3"
5. Lintel Height : 7'
6. Floor Height : 9'-4"
7. Slab Thickness : 5"
8. Parapet Height : 3'
9. Plinth Beam : 9" X 9"
10. Floor Beam : 9" X 14"
11. Slab projection : 1'-6"
12. Lintel Band : 6"
13. Sill Band : 3"
14. Riser : 7"
15. Tread: 11"
16. Window Height: 4'



GROUND FLOOR PLAN

AREA : 889.23 SQ.FT

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1. Draw the hatching symbols of the following in the box of 40mm×40mm. [2]
 - i) Brick in section
 - ii) Concrete in section
 - iii) Glass in elevation
 - iv) Wood in section
2. Draw / Fill in the gap with appropriate words. [2]
 - i) Structure below the group is called
 - ii) Draw the symbol of four gang one way switch
 - iii) Exit pipe (outlet) from WC (water close) is called
 - iv) Minimum parapet height of residence building is
3. Calculate the permissible built-up area and number of stories. If FAR is 1.75, plot area is 1480 sq ft and ground coverage is 60% of plot area. [2]
4. Draw the figure of light plane and ROW (right of way) as per building bye-laws to constrain the height of building. [2]
5. Redraw the given ground floor plan with complete dimensions (3 layers) by showing grid, hatching and all necessary information as required. (use 1:50 scale) [12]

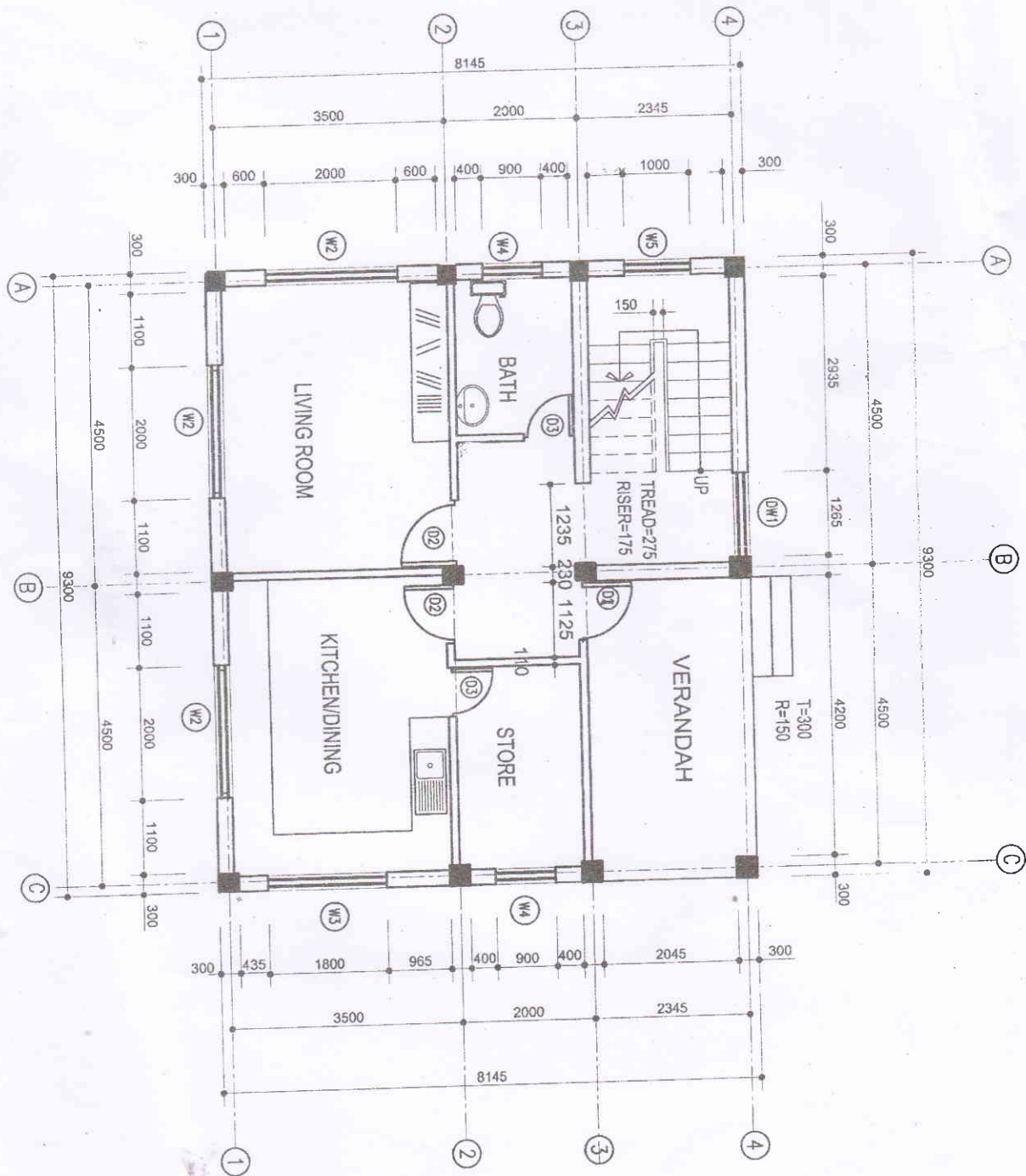
Description	Door/Windows Schedule	
	Symbol	Width
Column size : 300 x 300	D1	1000
Wall thickness : 230/110 (external/internal)	D2	900
Tread Width: 275	D3	750
Riser Height: 175	W1	2500
Landing Width: 1000	W2	2000
	W3	1800
	W4	900
	W5	1000
Note: All dimensions are in mm.		

6. Make a footing detail (plan and section) of footing B2 in scale 1:20. [4]

Column Type	Foundation Plan L x B (m)	Max. Thickness t_m (mm)	Reinforcement Each Way
Corner	1.25 x 1.25	300	6 - 12Φ
Face	1.4 x 1.4	300	7 - 12Φ
Interior	1.7 x 1.7	400	8 - 12Φ

7. Draw the vertical and horizontal detail section of typical wooden glazed window (Wz) in scale 1:10. [6]

GROUND FLOOR PLAN



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1. a) List down different building elements in sub-structure and super-structure. [2]
b) Draw hatching pattern for the following material representation. Use 5 cm × 5 cm area for each symbol. [2]
 - i) Glass in elevation
 - ii) Wood in section
c) Explain Floor Area Ratio (FAR). [2]
2. Redraw the given ground floor plan of load bearing structure by showing complete dimensions (3 layers) grid, lettering, hatching etc. (Use 1:50 scale) [12]
3. Make a detailed drawing of staircase as given in the attached drawing. Mention the necessary levels, floor details (ground and upper) and other information. (Use 1:20, 1:10, 1:15 scale) [12]

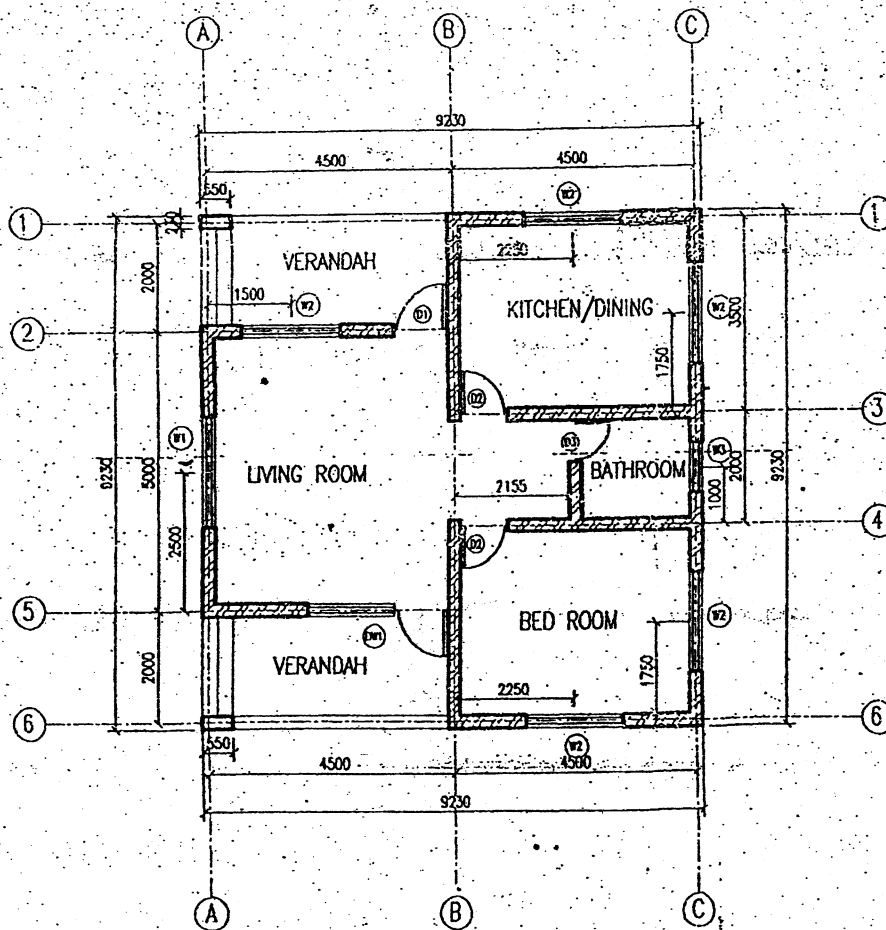
Description

Wall thickness: 230 (external/internal)
Plinth Height : 450
Floor Height : 2450
Slab Thickness : 100
Plinth Beam : 230 × 230
Floor Beam : 230 × 350
Tread Width : 230
Riser Height : 175
Stair Width : 1000
Landing Width : 1000

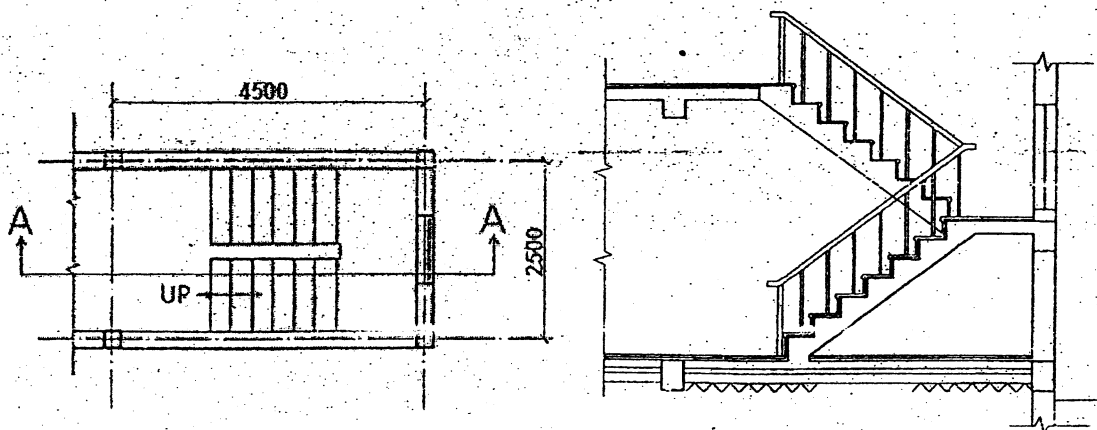
Note: All dimensions are in mm.

Door / Windows Schedule

<u>Symbol</u>	<u>Width</u>
DW1	2600
D1	1000
D2	900
D3	750
W1	2000
W2	1800
W3	900



PLAN



Plan

Section at A-A

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- ✓ Assume suitable data if necessary.

1. Calculate the permissible built-up area and number of storey's that can be built with plinth area of 820 sq. ft. The area of plot is 1369 sq. ft. and ground coverage is 60% where FAR is given 1.5 as per building bye-laws. [2]
2. Make the figure of light plane and ROW (right of way) as per building bye-laws to constrain the height of building. [2]
3. Write short answers on: (any two) [2]
 - a) Minimum Parapet height of residence building is
 - b) One ropani is equal to sq. ft.
 - c) Draw the symbol of MDB and 4 gang of one way switch.
 - d) What is soil line connected to before it is connected to the soak pit?

4. Draw Ground Floor Plans of the building as shown in the Figure 1, using appropriate drafting techniques. Refer to the description provided below. [12]

Drawing unit : Metric system (All dimensions in mm)
 Scale : 1:50
 Column size : 230 × 230
 c/c spacing - as shown in figure
 Wall thickness : Exterior: 230; Interior: 110
 Door D1 : 1000 × 2100
 Door D2 : 900 × 2100
 Window W1 : 1800 × 1200
 Window W2 : 1000 × 1200
 Window W3 : 750 × 1200
 Ventilation V1 : 400 × 400
 Plinth Level : 450 above ground level
 Dimensioning : - 3 layer dimension for floor plan
 - Floor Levels
 Hatching : as required

Assume any other dimensions are required.

5. Draw staircase detail (Plan and section at A-A) with detail dimensions, labelling and using appropriate drafting techniques, in scale 1:20, as given in Figure 2. Use the description given below: [12]

All dimensions are in millimeter. Assume any other dimensions as required.

Floor Height: 2800, Beam size: 230×350 , Column size: 230×230 (c/c spacing - as shown in figure), Wall Thickness: 230, Plinth Level: 750 above Ground Level.

Stair Steps:

16 risers @ 175

Tread : 300

Stair width : 1000

Waist slab : 125

Slab Thickness : 100

Window size : 1500×1100

Lintel Beam size : 230×100

Sill height : 900

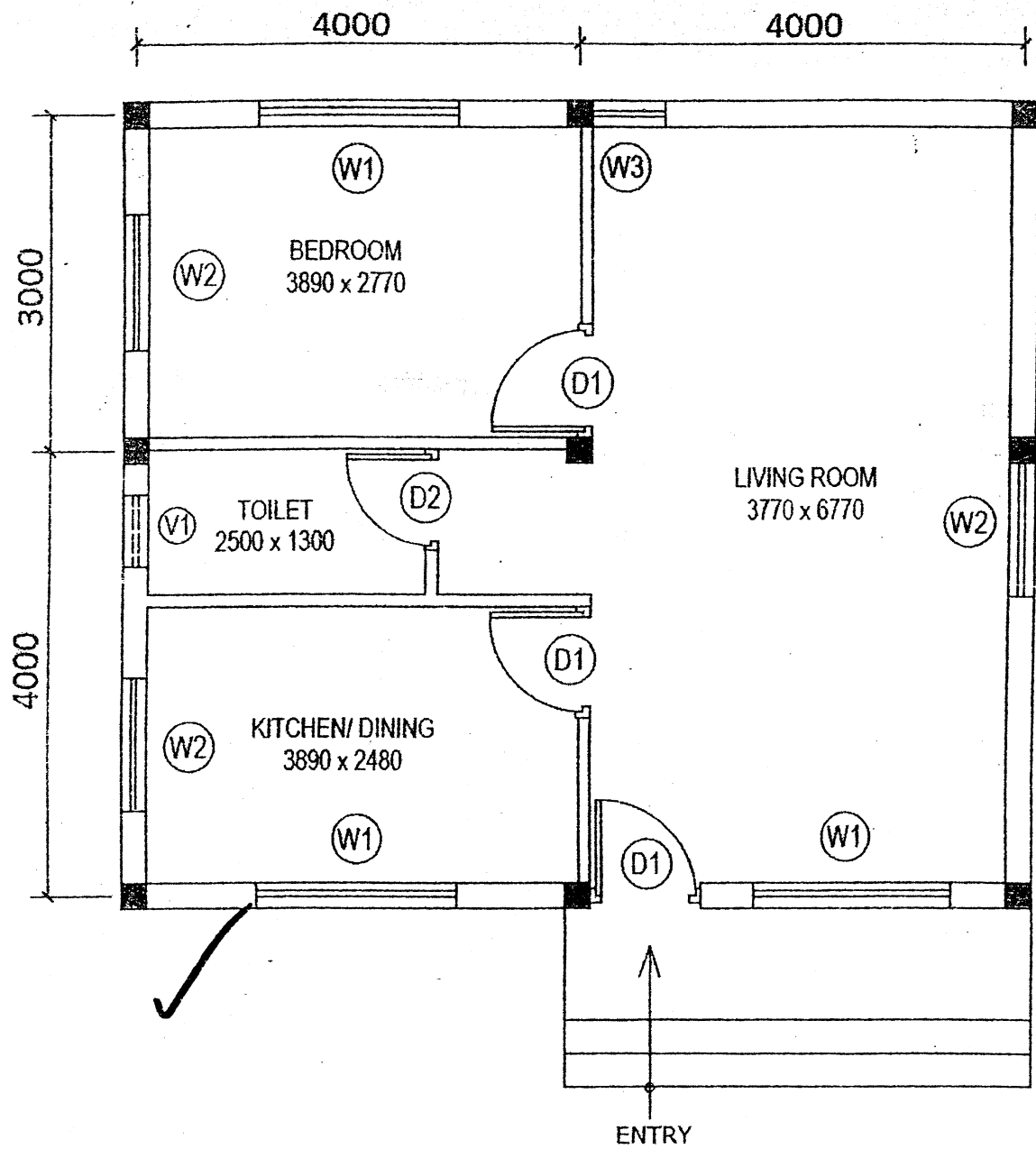
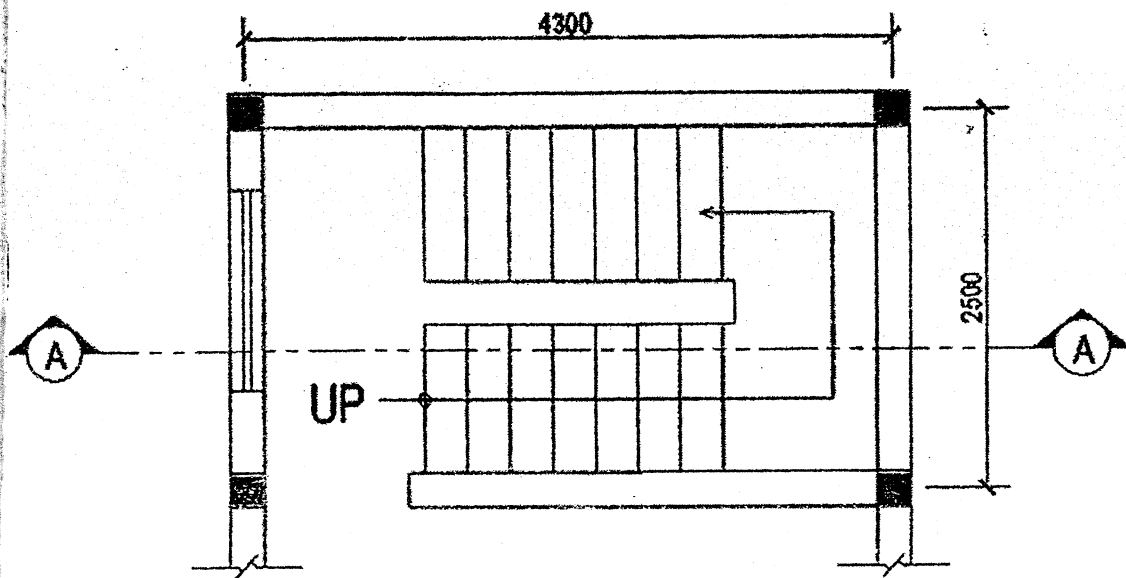
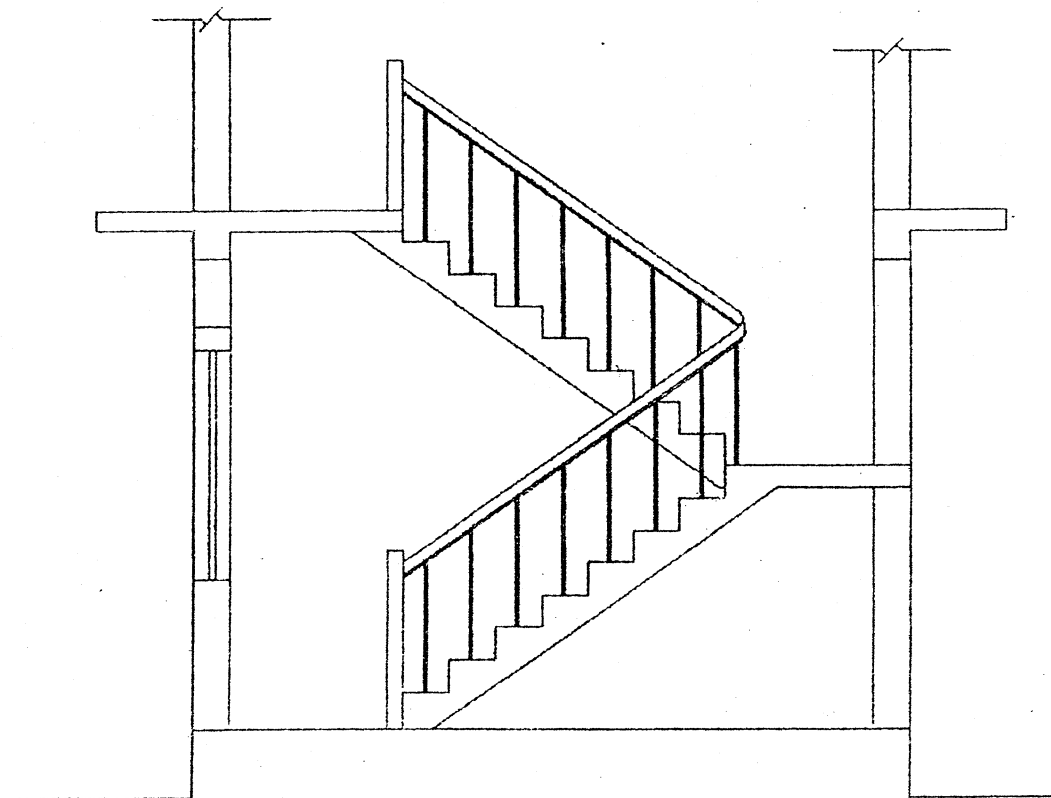


Figure 1: Ground Floor Plan



PLAN (GROUND FLOOR)



SECTION AT A-A

Figure 2: Staircase detail (Plan & Section)

Exam.	Regular		
Level	BE	Full Marks	30
Programme	BCE	Pass Marks	12
Year / Part	II / II	Time	3 hrs.

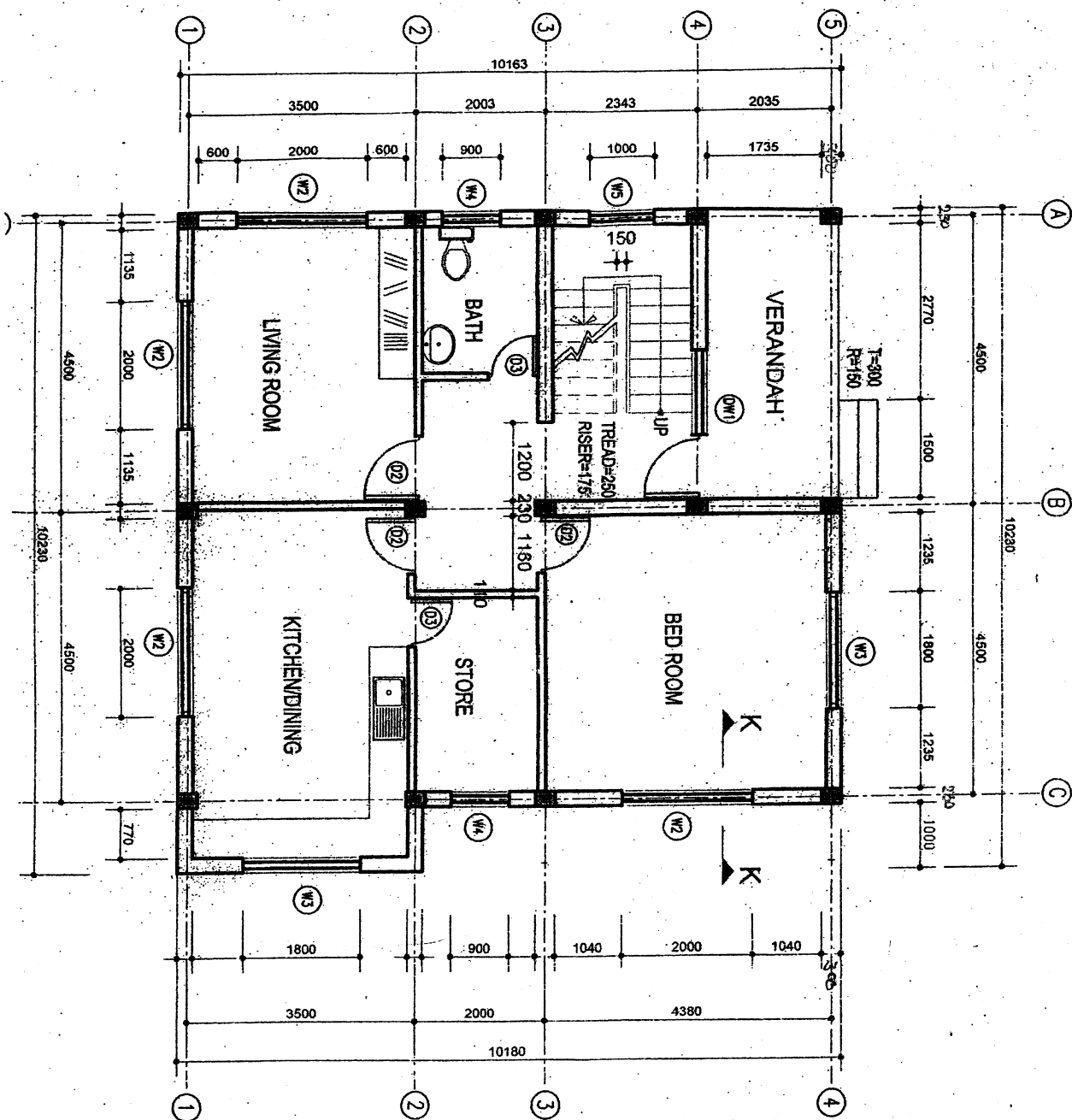
Subject: - Building Drawing (CE556)

- ✓ Candidates are required to give their answers in their own words as far as practicable.
- ✓ Attempt All questions.
- ✓ The figures in the margin indicate Full Marks.
- ✓ Necessary figures are attached herewith.
- ✓ Assume suitable data if necessary.

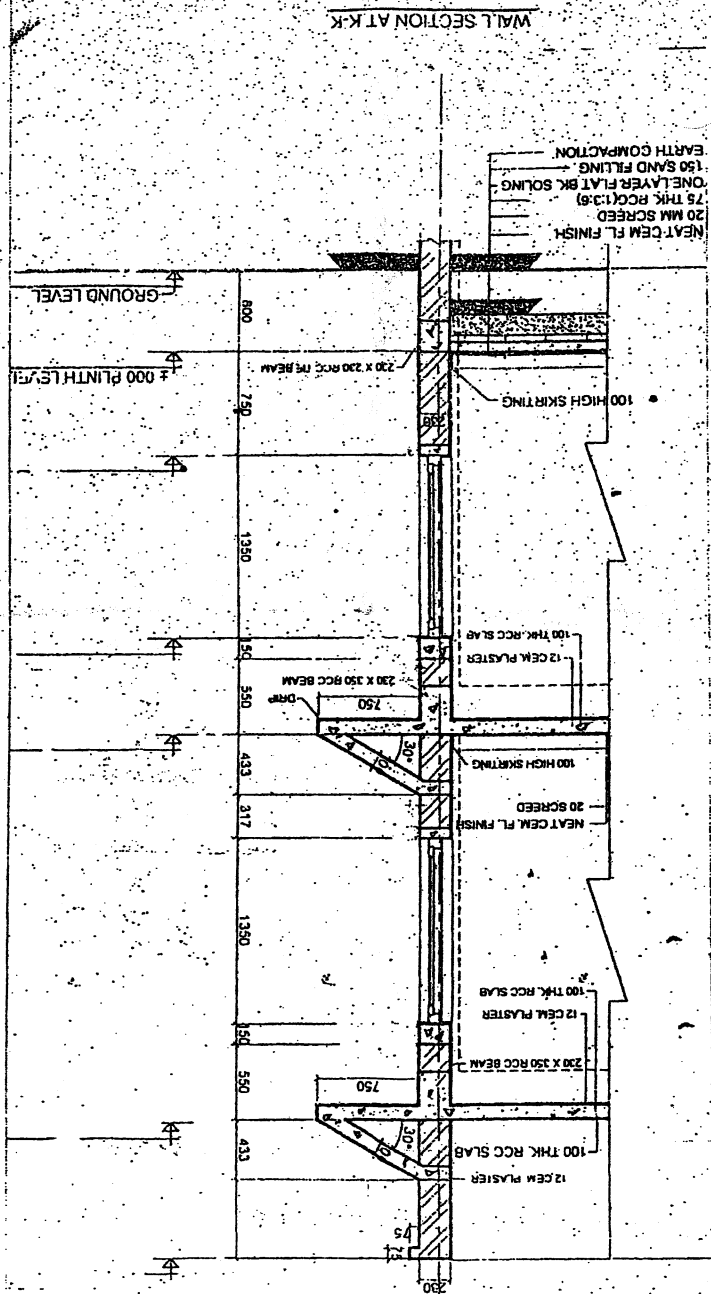
1. Draw the hatching symbols in the box of 40x40 mm [2]
 - a) Brick in section
 - b) Concrete in section
 - c) Wood in section
 - d) Stone in section
2. Draw the figure of light plane as per building bye-laws. Mention the right of way (ROW) to constrain the height of building. [2]
3. Redraw the following ground floor plan as shown in figure. Make complete dimension (3 layers) by showing all information as required in scale-1:50 [12]
4. Redraw the given wall section through ground level to parapet level. Mention the necessary levels, floor details (ground and upper) and other missing information. Use scale 1:20. [14]

Descriptions:

✓ Column (RCC)	: 230 x 300	Riser	: 175
Wall (Brick)	: 230 / 110 (External/Internal)	Tread	: 250
Slab thickness	: 100 (RCC)	Stair Width	: 1000
Slab projection	: 750	Landing Width	: 1000
Floor Beam	: 230 x 350	<u>Door/Window Schedule</u>	
Plinth Beam	: 230 x 230	DW1:	2300 x 2100
Floor Height	: 2800	W2:	2000 x 1350
Sill Height	: 750	W3:	1800 x 1350
Sill Band	: 230 x 50	W4:	900 x 1350
Lintel Height	: 2100	W5:	1000 x 1350
Lintel Band	: 230 x 150	D2:	900 x 2100
Parapet Height	: 900	D3:	750 x 2100



GROUND FLOOR PLAN



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Examination Control Division
2070 Bhadra

Exam.	Regular		
Level	BE	Full Marks	30
Programme	BCE	Pass Marks	12
Year / Part	II / II	Time	3 hrs.

Subject: - Building Drawing (CE556)

- ✓ Candidates are required to give their answers in their own words as far as practicable.
- ✓ Attempt All questions.
- ✓ The figures in the margin indicate Full Marks.
- ✓ Necessary figures are attached herewith.
- ✓ Assume suitable data if necessary.

1. Draw the hatching symbols in the box of 40×40 mm [2]
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3. Redraw the following ground floor plan as shown in figure. Make complete dimension (3 layers) by showing all information as required in scale-1:50 [12]
4. Redraw the given wall section through ground level to parapet level. Mention the necessary levels, floor details (ground and upper) and other missing information. Use scale 1:20. [14]

Descriptions:

✓ Column (RCC)	: 230 x 300
Wall (Brick)	: 230 / 110 (External/Internal)
Slab thickness	: 100 (RCC)
Slab projection	: 750
Floor Beam	: 230 x 350
Plinth Beam	: 230 x 230
Floor Height	: 2800
Sill Height	: 750
Sill Band	: 230 x 50
Lintel Height	: 2100
Lintel Band	: 230 x 150
Parapet Height	: 900

Riser	: 175
Tread	: 250
Stair Width	: 1000

Landing Width: 1000

Door/Window Schedule

DW1:	2300 x 2100
W2	: 2000 x 1350
W3	: 1800 x 1350
W4	: 900 x 1350
W5	: 1000 x 1350
D2	: 900 x 2100
D3	: 750 x 2100

06 TRIBHUVAN UNIVERSITY
INSTITUTE OF ENGINEERING
Examination Control Division
2069 Poush

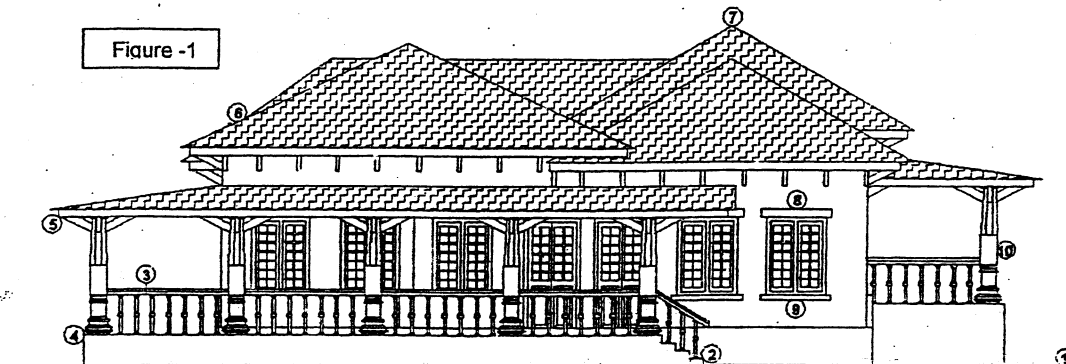
Exam.	New Back (2066 & Later Batch)		
Level	BE	Full Marks	30
Programme	BCE	Pass Marks	12
Year / Part	II / II	Time	3 hrs.

Subject: - Building Drawing (CE556)

- ✓ Candidates are required to give their answers in their own words as far as practicable.
- ✓ Attempt All questions.
- ✓ The figures in the margin indicate Full Marks.
- ✓ Necessary figures are attached herewith.
- ✓ Assume suitable data if necessary.

1. Write down the name of the different parts of a building as shown in the figure-1 below.

[1]



2. Draw the architecture symbol of rubble stone masonry and brick masonry in the box size 5cmx5cm. [0.5x2]

3. What is the angle of light plane? If road width is 12' for any plot calculate the permissible maximum height of the building.

[1]

4. Redraw the following ground floor plan with complete dimensions (3 layers) by showing all information as required in scale 1:50.

[12]

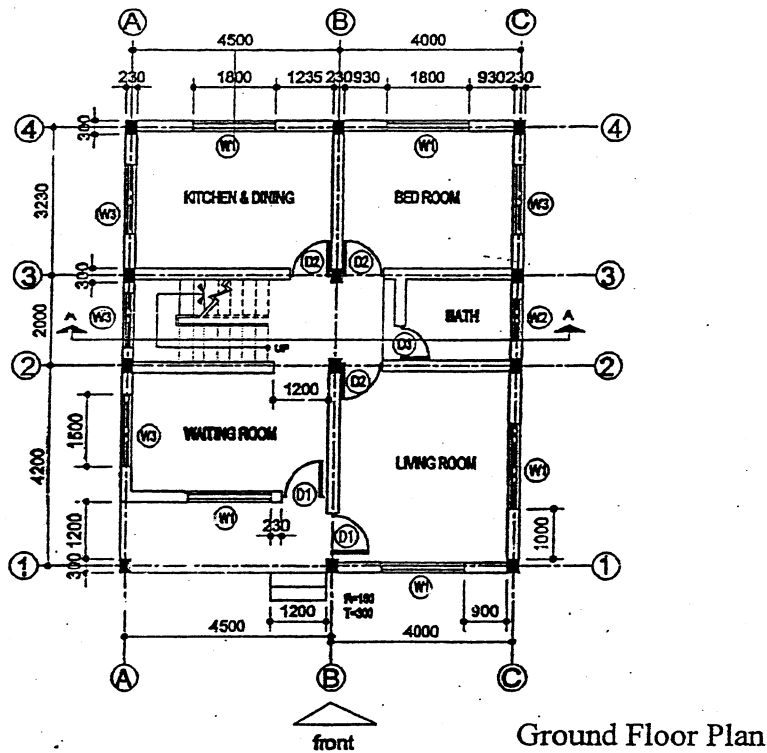
Description	
Column (RCC)	: 230 x 300
Wall (Brick)	: 230 (External/Internal)
Slab thickness	: 100 (RCC)
Slab projection	: 600
Parapet Height	: 750
Beam	: 230 x 350
Plinth	: 450
Floor Height	: 2800
Riser	: 175
Tread	: 250
Sill Height	: 900
Lintel Height	: 2100
Plinth Beam	: 230x230

Doors and Windows Schedule

TYPE	WIDTH	HEIGHT
D1	1000	2100
D2	900	2100
W1	1800	1200
W2	900	1200
W3	1500	1200
D3	750	2100

STAIRCASE

- i) Stair width : 1000
- ii) waist slab : 150
- iii) Landing Width : 1000
- iv) hand rail : 65 x 100
- v) height : 900
- vi) Baluster : 40 dia.



5. Draw elevation and vertical and horizontal detail section of a typical wood frame-glazed/glass window. The size of window is 7'x4'6". Three panel window having central panel fix and two side panels are openable. There is no ventilator on window.

i) Elevation: (scale 1" = 2'0")

ii) Vertical and horizontal detail sections (scale 1" = 1'0")

[5]

6. Draw the staircase detail of given above ground floor plan

[3+3]

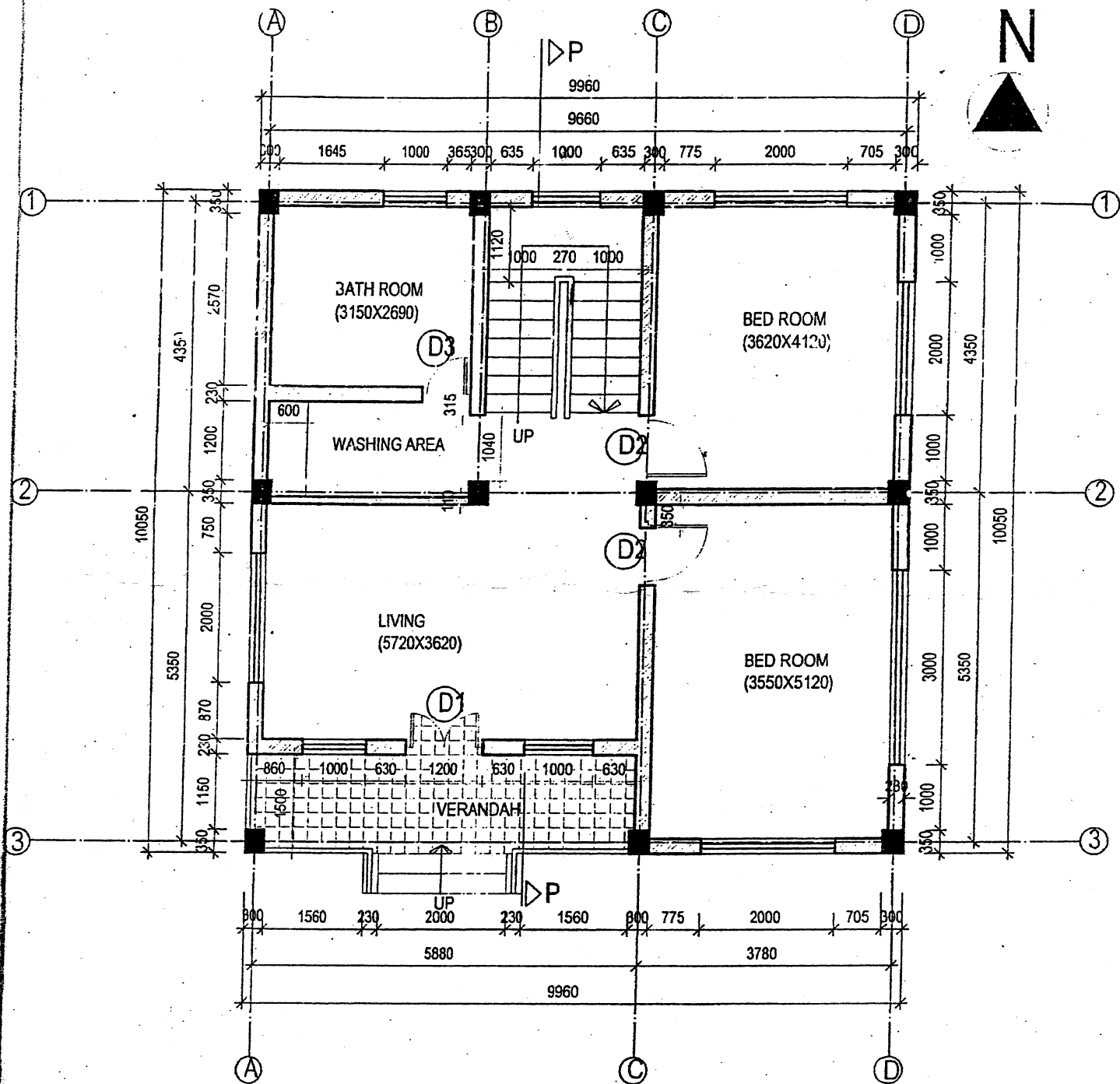
(i) Plan (scale: 1:25) (ii) section (scale 1:25)

Exam.	Regular (2066 & Later Batch)		
Level	BE	Full Marks	30
Programme	BCE	Pass Marks	12
Year / Part	II / II	Time	3 hrs.

Subject: - Building Drawing (CE556)

- ✓ Candidates are required to give their answers in their own words as far as practicable.
- ✓ Attempt All questions.
- ✓ The figures in the margin indicate Full Marks.
- ✓ Necessary figures are attached herewith.
- ✓ Assume suitable data if necessary.

1. Explain the types of drawings, what are the minimum drawings for a municipality pass drawing sheet? [2]
2. Draw hatching for the following material representation. Use 5cm×5cm area for each hatching a) Brick elevation (b) Concrete elevation (c) Liquid elevation (d) Gravel elevation. [2]
3. If ground coverage is 80%, calculate the permissible ground coverage area of given plan figure 1. [1]
4. Fill in the gap with appropriate words (use drawing sheet as answer paper) [0.5×4]
 - a) Scale for Kathmandu valley's map is(1:20,000, 1:10 or 1:100)
 - b) Draw the symbol of dome light (ceiling light) and single tube light.
 - c) Exit (outlet) pipe from WC/Pan in a toilet is known as pipe.
 - d) The name of drawing send to construction purpose at site is drawing.
5. Redraw the given ground floor plan (figure 1) including walls, columns, grid lines, dimensions, hatching and all complete information. (Scale 1:100) [12]
6. Draw the trench plan of the given plan (figure 1). Draw typical footing detail plan and section of footing B2. (Scale 1:50) [4+3+4]
 - The size of footing B2 and C2 are 3m×3m×2.5m
 - All other footing sizes are 2m×2m×2m
 - Wall thickness is 230mm and 110 refer plan
 - d) 6 number 16mm main vertical bars on pillars and 8mm diameter stirrups @5" c/c
 - e) Lowermost jali 10mm diameter bars @6" c/c both ways, grade of concrete is M20
 - f) Assume necessary data if necessary



GROUND FLOOR PLAN

FIG 1 (wall thickness is 230mm except specified)

All dimensions are in mm

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INSTITUTE OF ENGINEERING
Examination Control Division
2068 Magh

Exam.	New Batch (2066 & Later Batch)		
Level	BE	Full Marks	30
Programme	BCE	Pass Marks	12
Year / Part	II / II	Time	3 hrs.

Subject - Building Drawing

- ✓ Candidates are required to give their answers in their own words as far as practicable.
- ✓ Attempt All questions.
- ✓ The figures in the margin indicate Full Marks.
- ✓ Necessary figures are attached herewith.
- ✓ Assume suitable data if necessary.

1. a) Mention building types, based on structural system. [2]
 b) Draw hatching pattern for the following material representation. Use 5cm×5cm area for each pattern. [2]
 i) Wood in section ii) Glass in elevation
 iii) Stone in section iv) Tile
 c) Draw the figure of light plane as explained in bye-laws. [2]
2. Redraw Ground floor plan as given in figure 2, based on description given below. (Scale 1"= 8'-0") [12]

1. Column size – 9" x 12"
2. All wall thickness – 9" (External/ Internal)
3. Plinth height – 2'
4. Floor height – 9'4"
5. Slab thickness – 4"
6. Parapet height – 3'
7. Plinth beam – 9" x 9"
8. Floor beam – 9" x 14"
9. Slab projection – 1'6"
10. Sill height – 3'
11. Lintel height – 7'
12. Lintel band thickness – 6" RCC
13. Riser height – 7"
14. Tread width – 11"

Doors and Window Schedule

SN	Symbol	Width	Height
1	D1	4'	7'
2	D2	3'	7'
3	D3	2'6"	7'
4	W1	6'	4'
5	W2	4'	4'
6	W3	3'	4'

3. Draw the staircase with detail dimension, complete labeling and using appropriate drafting techniques, in scale 1:20, as given in figure 3, based on the description given below. [12]

Steps:

- 14 risers @ 180
- Tread: 300
- Stair width: 1000
- Waist slab: 125

Floor height: 2520, Beam size: 230×300, wall thickness: 230, Plinth level: 600 from ground level.

Ground floor details:

- Marble floor finish
- 20mm screed
- 75 thk PCC
- Flat brick soling
- 100mm sand filling
- Earth compaction

First floor Details:

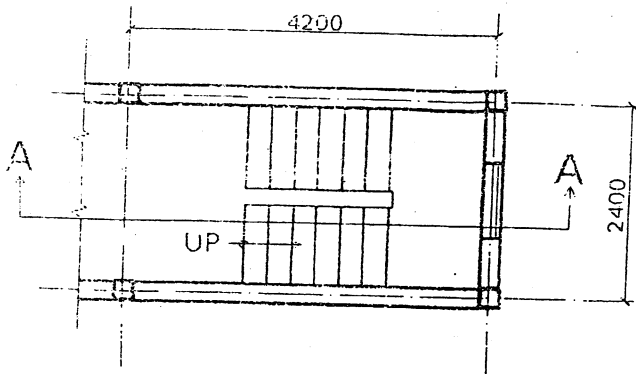
- Marble floor finish
- 20mm screed
- Floor slab: 125
- Cement plaster: 12mm

All dimensions are in millimeter. Assume any other dimensions as required.

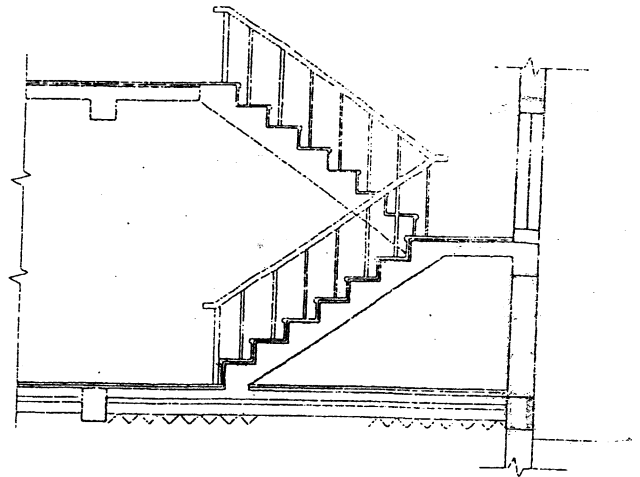
OR

Draw the complete section through the window from footing to parapet. Write the name of all parts and give the dimension also. Take the necessary data from question no. 2 and assume the other necessary data if required. (Scale 1"= 2'-0")

[12]

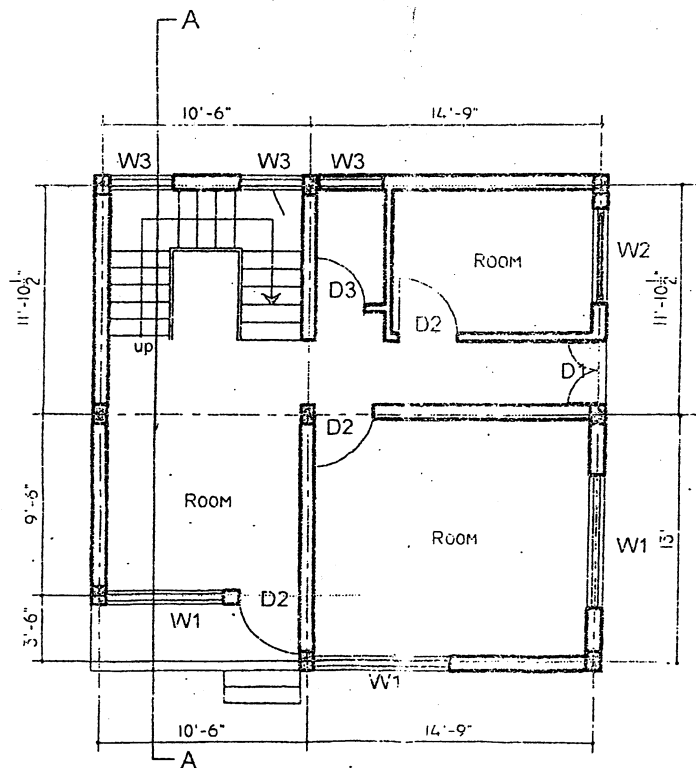


Plan



Section at A-A

Figure 3: Staircase detail



GROUND FLOOR PLAN

Floor Area = 635.96 sq. ft.

Fig. 2

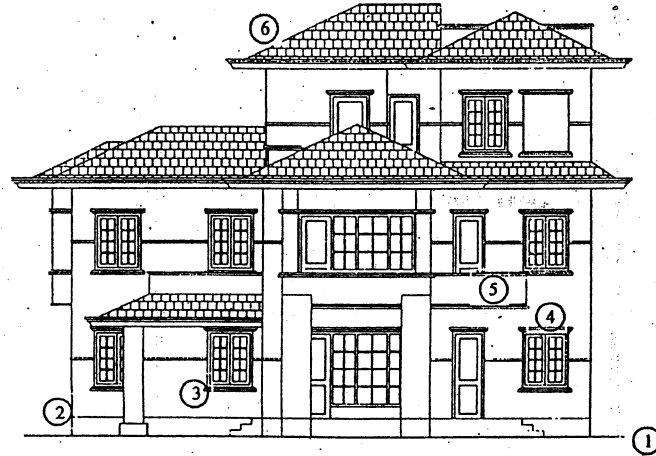
Building Drawing - 2068 Mogh

Exam.	Regular		
Level	BE	Full Marks	30
Programme	BCE	Pass Marks	12
Year / Part	II / II	Time	3 hrs.

Subject: - Building Drawing

- ✓ Candidates are required to give their answers in their own words as far as practicable.
- ✓ Attempt All questions.
- ✓ The figures in the margin indicate Full Marks.
- ✓ Necessary drawing sheet are attached herewith.
- ✓ Assume suitable data if necessary.

1. Write down the name of the different parts of a building as shown in the figure below. [0.5×6]



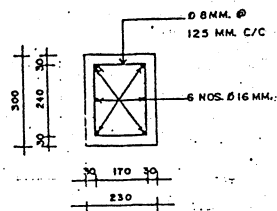
2. Draw the hatching symbol of Brick section and Earth. Box size for hatching is 4cm × 4cm. [0.5×2]
3. Redraw the given ground floor plan of figure 2 in detail including wall line, dimension, grid line, hatching and internal information. (Scale 1:100) [7+2+1+1+1]
4. Redraw the footing detail of a column in detail including pillar reinforcement detail, footing reinforcement in plan and section as shown in the figure 3. (scale 1:10, 1:20, 1:20) [2+5+5]

OR

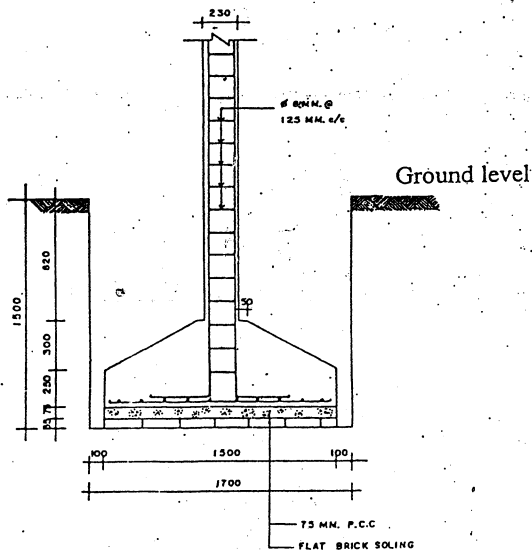
Draw the plan (with appropriate drafting techniques and labeling) as shown in the figure 4, in 1:20 metric scale. Assume any dimensions as required.

- a) Complete the sanitary drawing showing the following pipeline network with flow direction: [9,5]
- i) Hot water supply line
 - ii) Cold water supply line
 - iii) Waste water line
 - iv) Soil pipeline
- b) Identify the symbols in the electrical layout of figure 4 that are numbered. [2.5]
5. Write short answer, use drawing sheet as answer copy. [5×4]
- a) Angle of light plane is
 - b) Set back from road side is
 - c) Draw the symbol of one gang-two way switch
 - d) If area is 1500 sqm and ground coverage is 60%, calculate maximum ground floor area

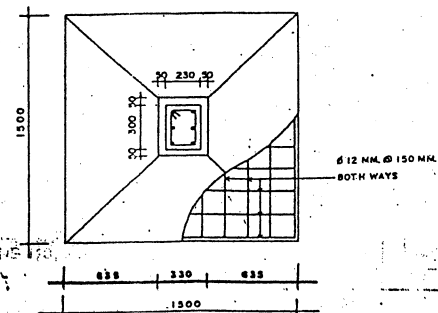
Figure 3 (1:10, 1:20, 1:20)



COLUMN DETAIL (C1)
(SCALE 1:10)

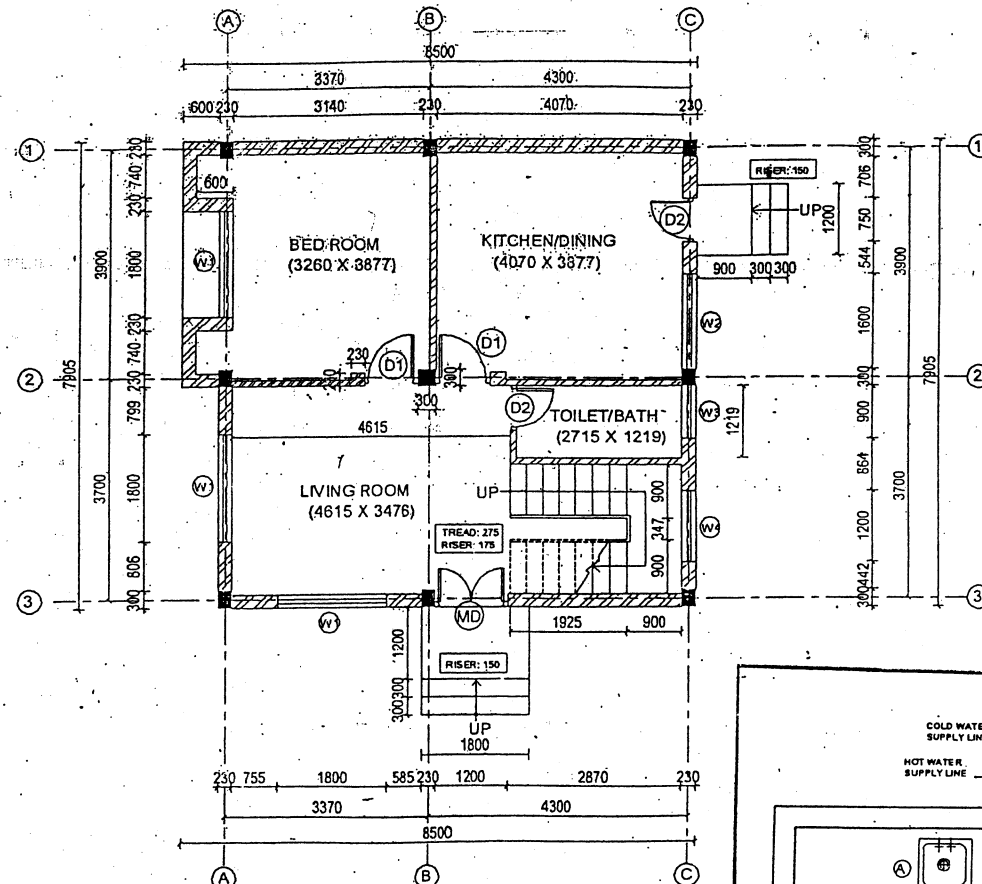


FOOTING SECTION (F1)
(Scale 1:20)



FOOTING PLAN (F1)

Figure 2. (1:100)



GROUND FLOOR PLAN

MD1: 1200X2100
D1: 900X2100
D2: 750X2100
W1: 1800X1350 (Sill ht. 750)
W2: 1600X1350 (Sill ht. 750)
W3: 900X1000 (Sill ht. 1100)
W4: 1200X1800 (Sill height 150 from landing level)
Wall thickness: 230 AND 110
PILLAR SIZE: 230X300

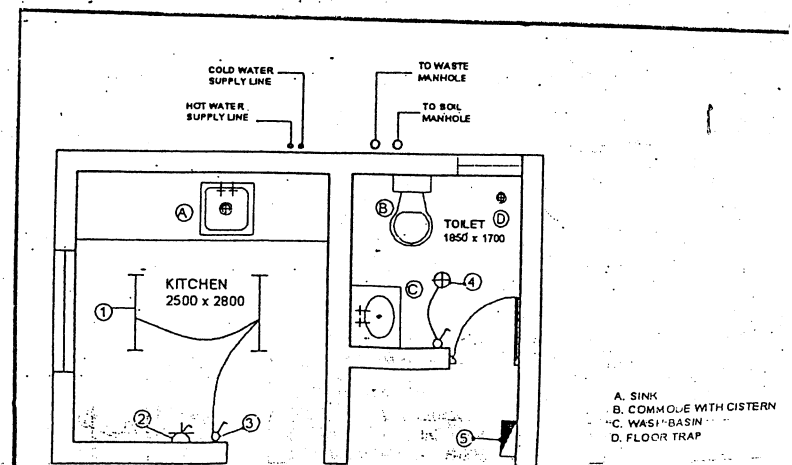


Figure 4: Sanitary and Electrical layout plan