

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

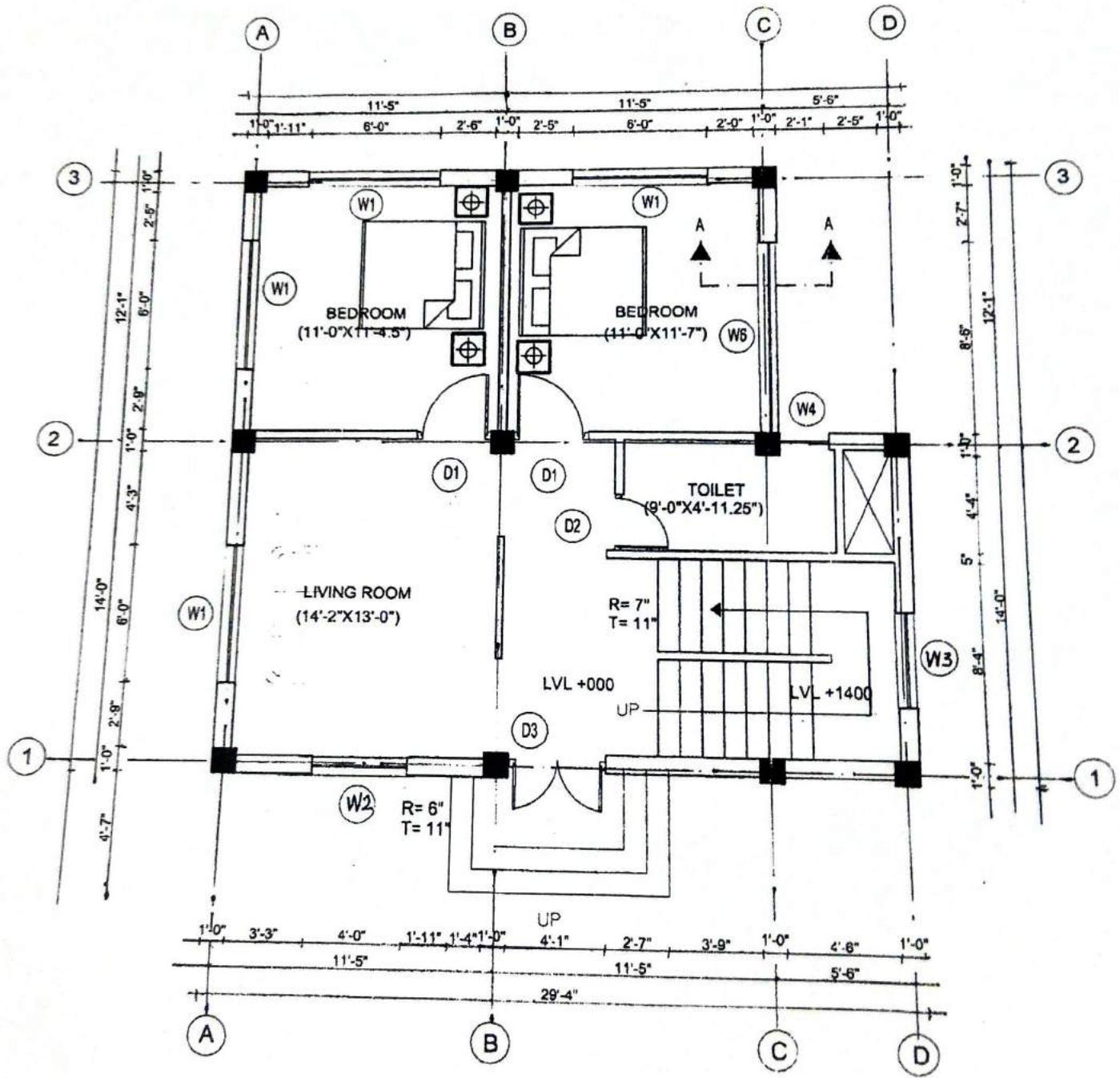
Subject: - Building Drawing (CE556)

- ✓ 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. 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:
 - 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

Exam.	Regular		
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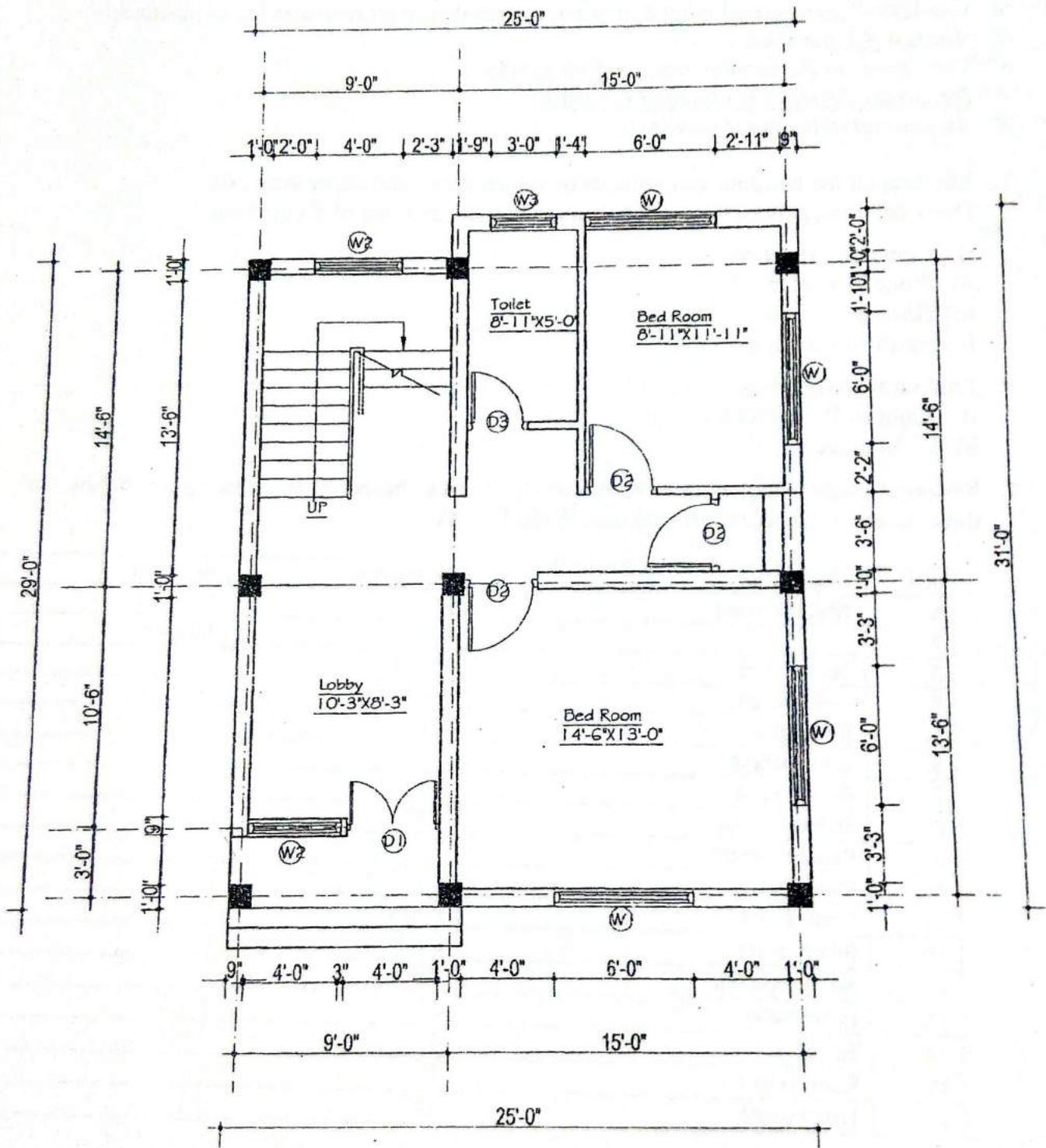
1. Mention all the building components of sub structure and super structure. [2]
2. Draw hatching pattern for the following materials in a box of 5 cm×5cm. [2]
 - i) Concrete in section
 - ii) Stone in section
 - iii) Brick in section
 - iv) Earth compaction
3. Explain with drawing: [2]
 - i) Right of Way (ROW)
 - ii) Light plane
4. Redraw Ground Floor Plan of a providing drawing, based on the description below with three layers of complete dimensions. Scale 1" = 8'0" [12]

S.N	Description	Dimension	Remarks
1.	Wall thickness	9"	External
2.	"	4.5"	Internal
3.	Column size	12"x 12"	
4.	Plinth height	1'6"	
5.	Sill height	3' 0"	
6.	Lintel height	7' 0"	
7.	Floor height	9' 5"	
8.	Slab thickness	5"	
9.	Parapet height	3' 0"	
10.	Plinth-beam	9"x9"	
11.	Floor beam	9"x14"	
10.	Plinth beam	9"x9"	
12.	Slab projection	1'6"	
13.	Lintel Band	6"	RCC
14.	Sill Band	4"	PCC
15.	Riser height	7"	
16.	Tread width	11"	

Opening Schedule

S. N.	Description	Symbol	Nos.	Width	Height	Remarks
1.	Panel Door	D1	1	4'0"	7'0"	Main Door
2.	Flush Door	D2	3	3'0"	7'0"	
3.	Flush Door	D3	2	2'6"	7'0"	Sun mica from inside
4.	Glazed Window	W1	2	6' 0"	4'0"	Two panel window
5.	Glazed Window	W2	2	4' 0"	4'0"	Two panel window
6.	Glazed Window	W3	2	3' 0"	4'0"	Single panel window

5. Draw detail elevations and vertical sections of Door D2 and window W1 in scale 1" = 2'0".
6. Draw detail plan and section of any one isolated footing of given ground floor plan. Footing size: 6×6', footing depth: 5×6", column size: 12"×12" column reinforcement: 16mm dia. 8 number, plinth height: 2'-0". Scale: 1"=1'. Assume necessary dimensions. [6]



GROUND FLOOR PLAN

AREA : 756.50 SQ.FT.

STAIRCASE WIDTH = 4'-0"
RISER = 7"
TRADE = 11"

Exam.	New Back (2066 & Later Batch)		
Level	BE	Full Marks	30
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Subject: - Building Drawing (CE556)

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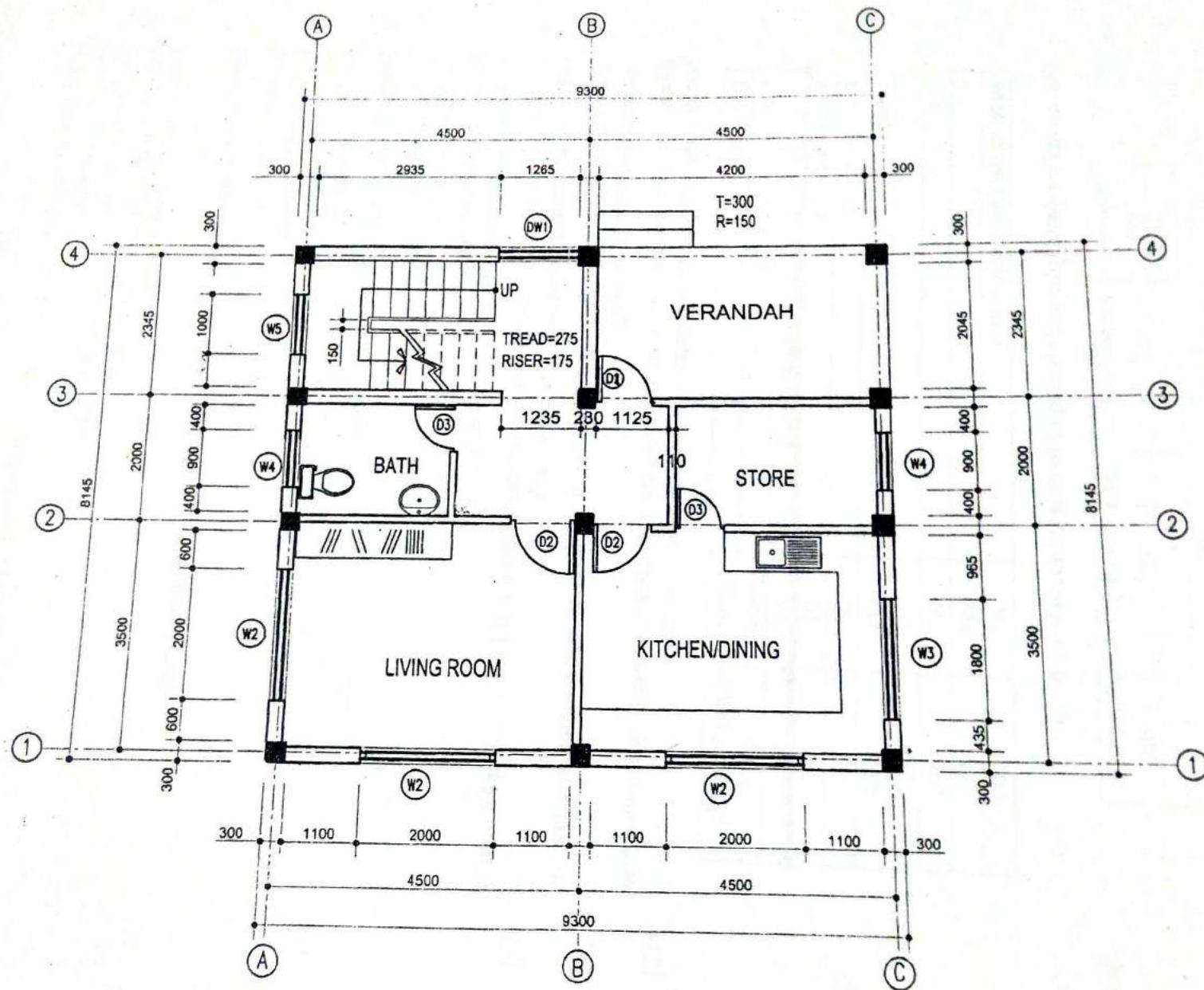
1. Draw the hatching symbols of the following in the box of 40mm×40mm. [2]
 - i) Brick in section
 - ii) Concrete in section
 - iii) Glass in elevation
 - iv) Wood in section
2. Draw / Fill in the gap with appropriate words. [2]
 - i) Structure bellow the group is called
 - ii) Draw the symbol of four 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]

<u>Description</u>		<u>Door/Windows Schedule</u>	
		<u>Symbol</u>	<u>Width</u>
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
Note: All dimensions are in mm.		W5	1000

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

<u>Column Type</u>	<u>Foundation Plan L x B (m)</u>	<u>Max. Thickness t_m (mm)</u>	<u>Reinforcement Each Way</u>
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. If plot area is 0-6-1-0.5, permissible ground coverage is 50% and floor area ratio (FAR) is 1.5. Calculate the permissible built up area and maximum no. storey. [2]
2. Draw a light plane and right of way (ROW) as per building bye-laws. [2]
3. Redraw the given ground floor plan of frame structure by showing three level of dimensioning, grid lettering, hatching etc Refer figure 1 (Use scale 1:50) [12]
4. a) Draw hatching pattern for the following materials representation. Use 60mm×60mm area:
 - i) Brick wall in section
 - ii) Concrete in section
 - iii) Timber in section
 - iv) Timber in elevation
 b) Draw symbol of:
 - i) One gang two way switch
 - ii) Power socket with switch
 - iii) 90 degree Elbow
 - iv) Gate valve
5. Draw a footing detail plan and footing detail section of the given plan in scale 1:20. Draw plan of column in scale 1:10 for corner column with given data: [10]

Footing size - 1250 X 1250

Footing depth - 1500

Column size - 300 X 300

Lower reinforcement bars - 12 φ, @ 150 c/c both way

Two legged main vertical bars for column - 8 no 12 φ.

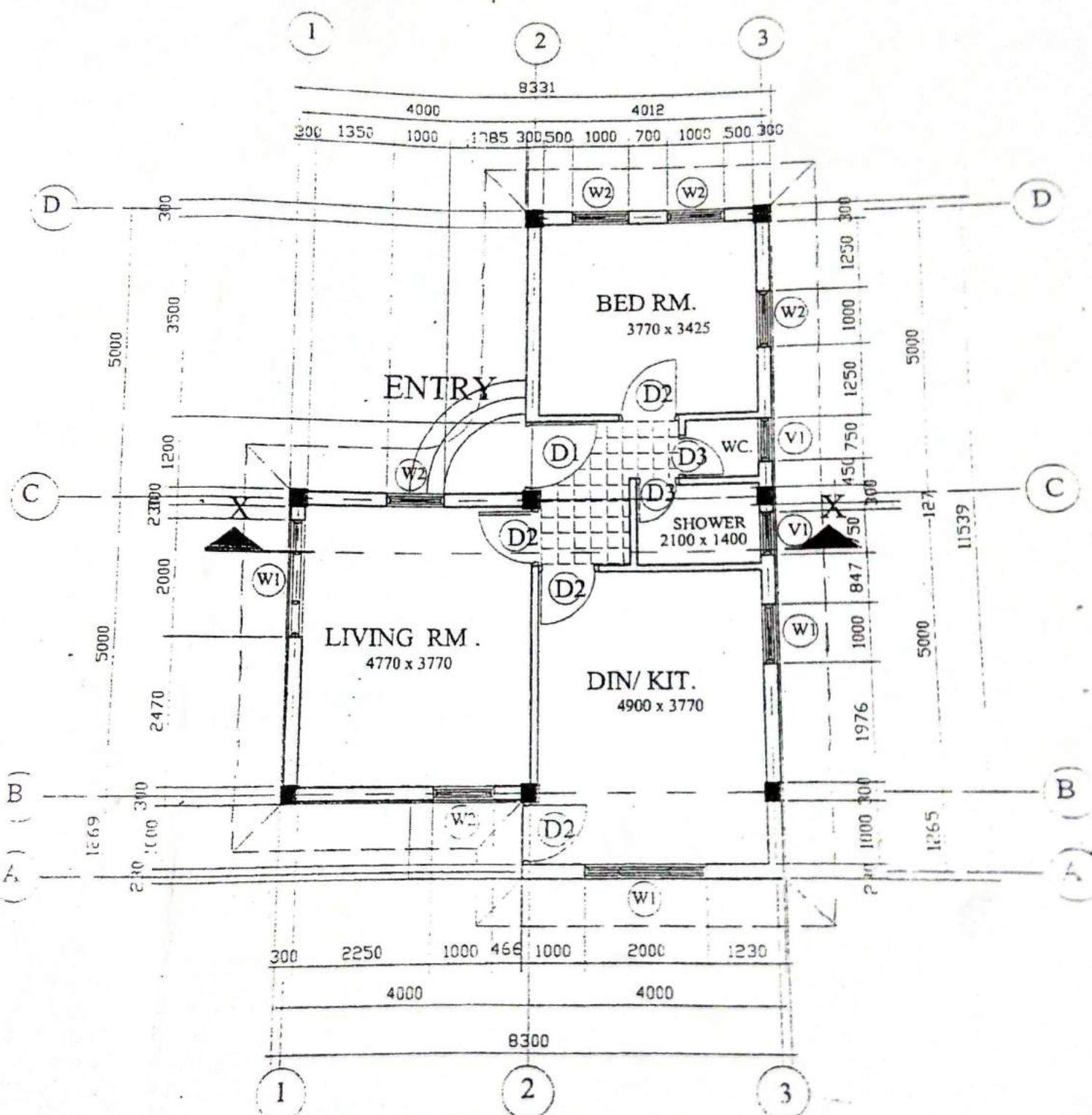
Stirrups (ring) - 8 φ, @ 150 c/c.

Descriptions:

Door/Window Schedule:

Brick wall Thickness : 230/110 (ext./int.)

Steps Tread	: 300	D1	: 1200 x 2100
Steps Riser	: 150	D2	: 900 x 2100
Floor Slab	: 100	D3	: 750 x 2100
Slab beam	: 230 x 350		
Lintel beam	: 230 x 150	W1	: 2000 x 1200
Sill beam	: 230 x 75	W2	: 1000 x 1200
Floor Height	: 2800		
Sill Height	: 900		
Plinth height	: 450		
Slab projection	: 600		



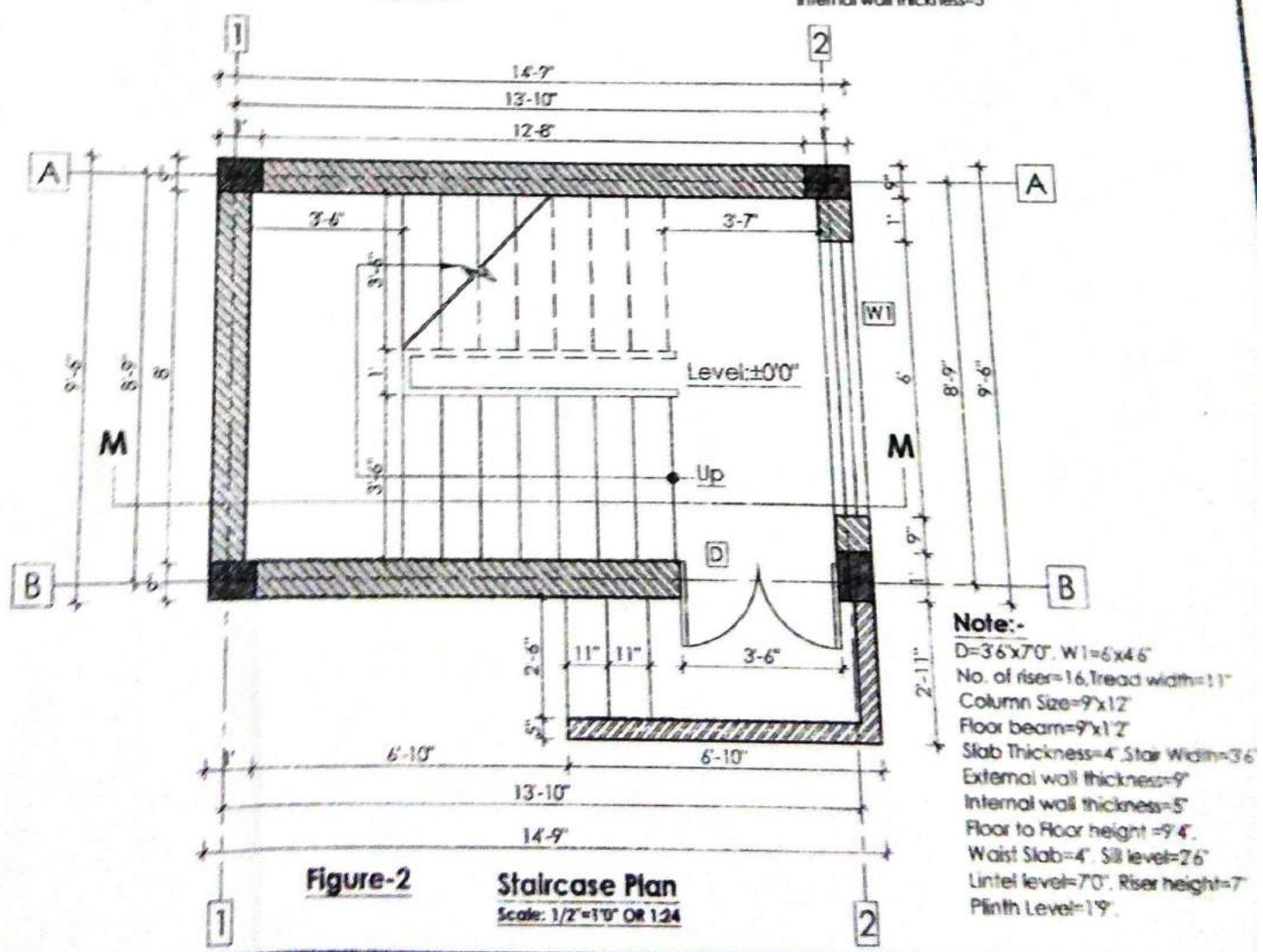
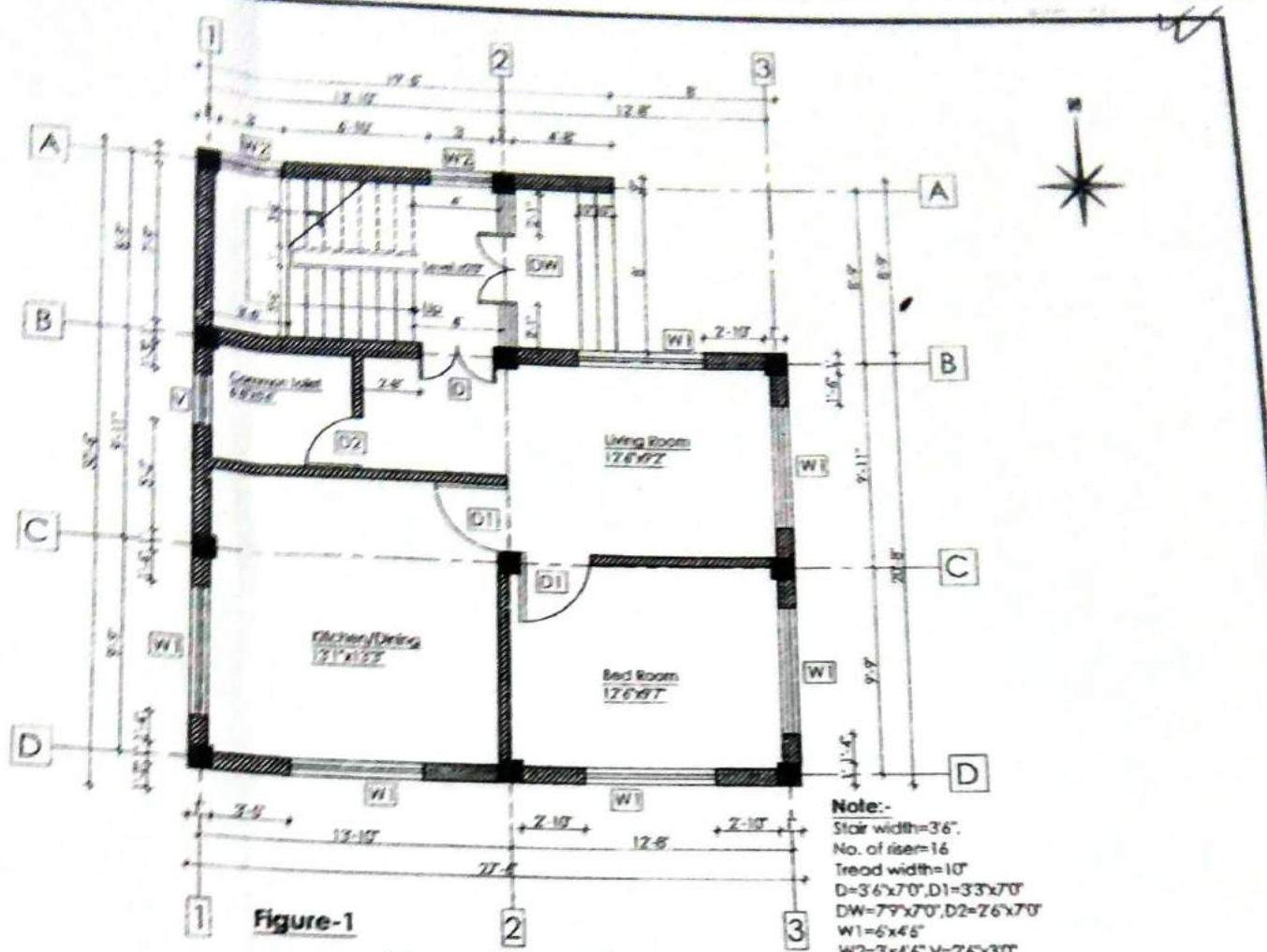
FLOOR PLAN

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

Subject: - Building Drawing (CE556)

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1. Draw the hatching pattern for the following material representation. Use 5cm x 5cm box size.
Use suitable scale. [2]
 - Brick Section
 - Stone masonry (elevation)
2. Explain Floor Area Ratio (FAR). Calculate the Permissible build up area, where FAR is equal to 1.75 and total site area is equal 1369.00sq. ft. [2]
3. Write short notes on following. [2]
 - Angle of light Plane is.....
 - Right of Way measured from.....
 - One Ropani is equal to Aana.
 - Municipality Drawing generally made on scale &
4. Redraw the Given Ground Floor Plan (Figure-1) with complete dimensions (Three layers), lettering, grid line & hatching by using with appropriate drafting techniques. Also complete the missing dimension. (Scale 1"=4'-0") [12]
5. Make a detail drawing of staircase. Mention the necessary levels, floor beams and other informations. (Figure-2). [12]
 - Staircase Plan (Scale: 1" =2'-0")
 - Staircase Section at M-M(Scale: 1" =2'-0")



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

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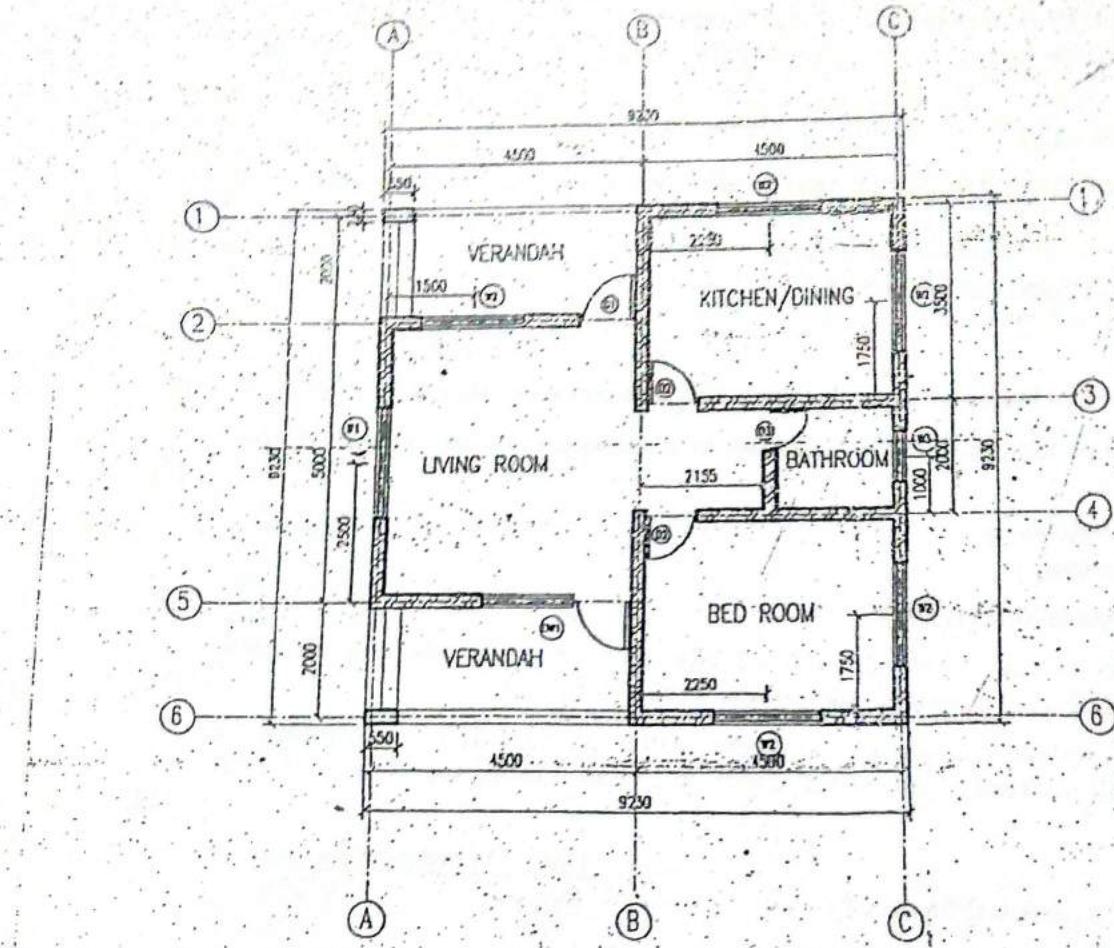
1. a) List seven different building elements in sub-structure and super-structure. [2]
- b) Draw hatching pattern for the following material representation. Use 5 cm × 5 cm area for each symbol.
- i) Glass in elevation
- ii) Wood in section
- c) Explain Floor Area Ratio (FAR). [2]
2. Redraw the given 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 scales) [12]

Description

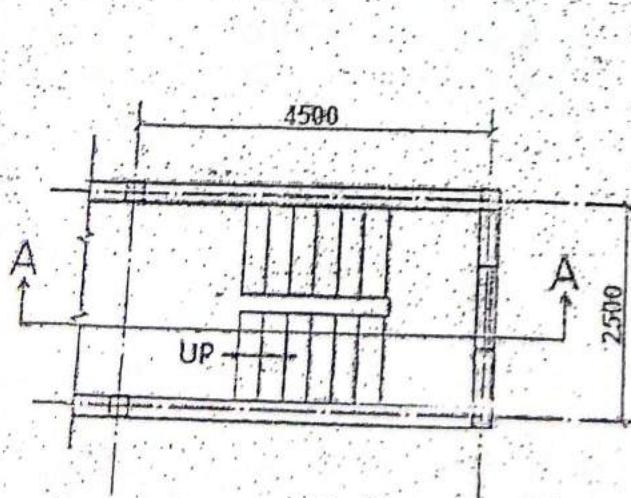
Wall thickness: 230 (external/internal)
 Plinth Height : 450
 Floor Height : 2450
 Slab Thickness : 100
 Plinth Beam : 230 × 230
 Floor Beam : 230 × 350
 Tread Width : 230
 Riser Height : 175
 Stair Width : 1000
 Landing Width : 1000

Door / Windows Schedule	
Symbol	Width
DW1	2600
D1	1000
D2	900
D3	750
W1	2000
W2	1800
W3	900

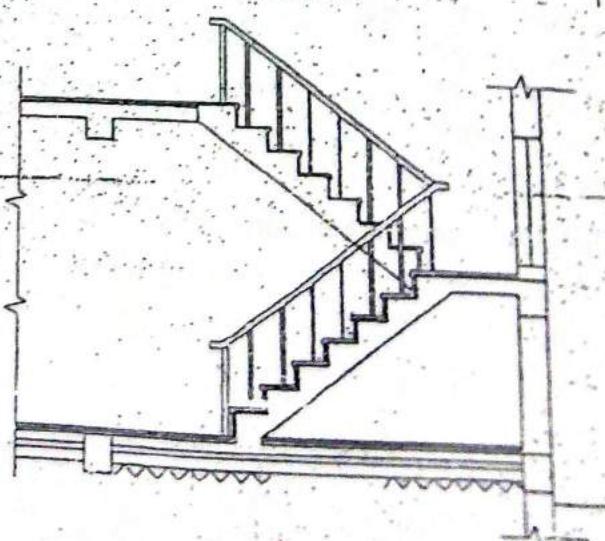
Note: All dimensions are in mm.



PLAN



Plan



Section at A-A

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

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.
- ✓ 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

Exam.	BB	Regular
Level	B.E	Full Marks
Programme	B.C.E	Pass Marks
Year / Part	H / H	Time

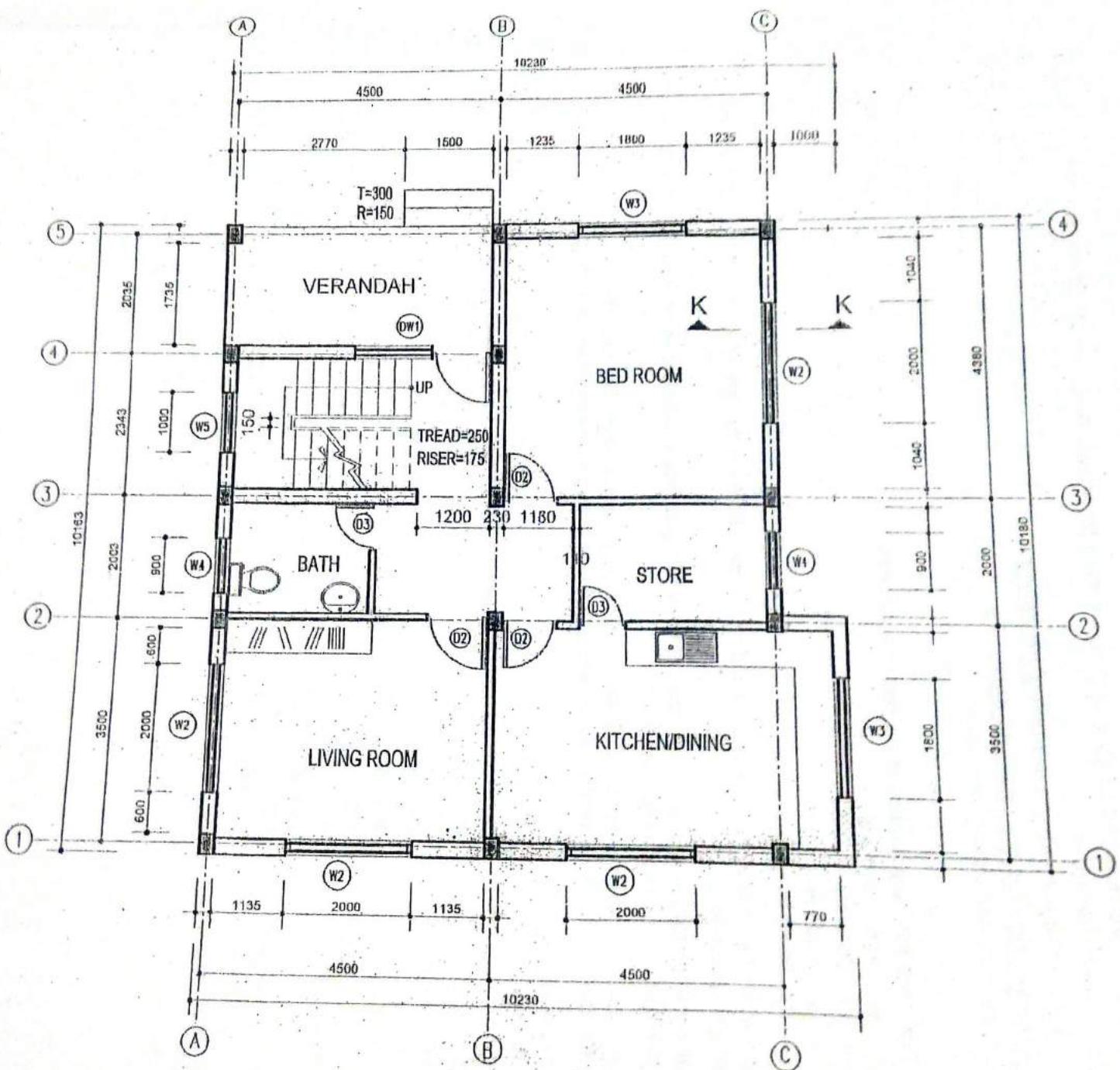
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- ✓ Attempt All questions.
- ✓ The figures in the margin indicate Full Marks.
- ✓ Necessary figures are attached herewith.
- ✓ Assume suitable data if necessary.

1. Draw the hatching symbols in the box of 40x40 mm [2]
 - Brick in section
 - Concrete in section
 - Wood in section
 - 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	Door/Window Schedule	
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	



Exam.	EXAMINATION & CONTROL DIVISION		
Level	EC	Full Marks	12
Programme	BCE	Pass Marks	12
Year / Part	H / II	Time	3 hrs.

Subject: - Building Drawing (AR556)

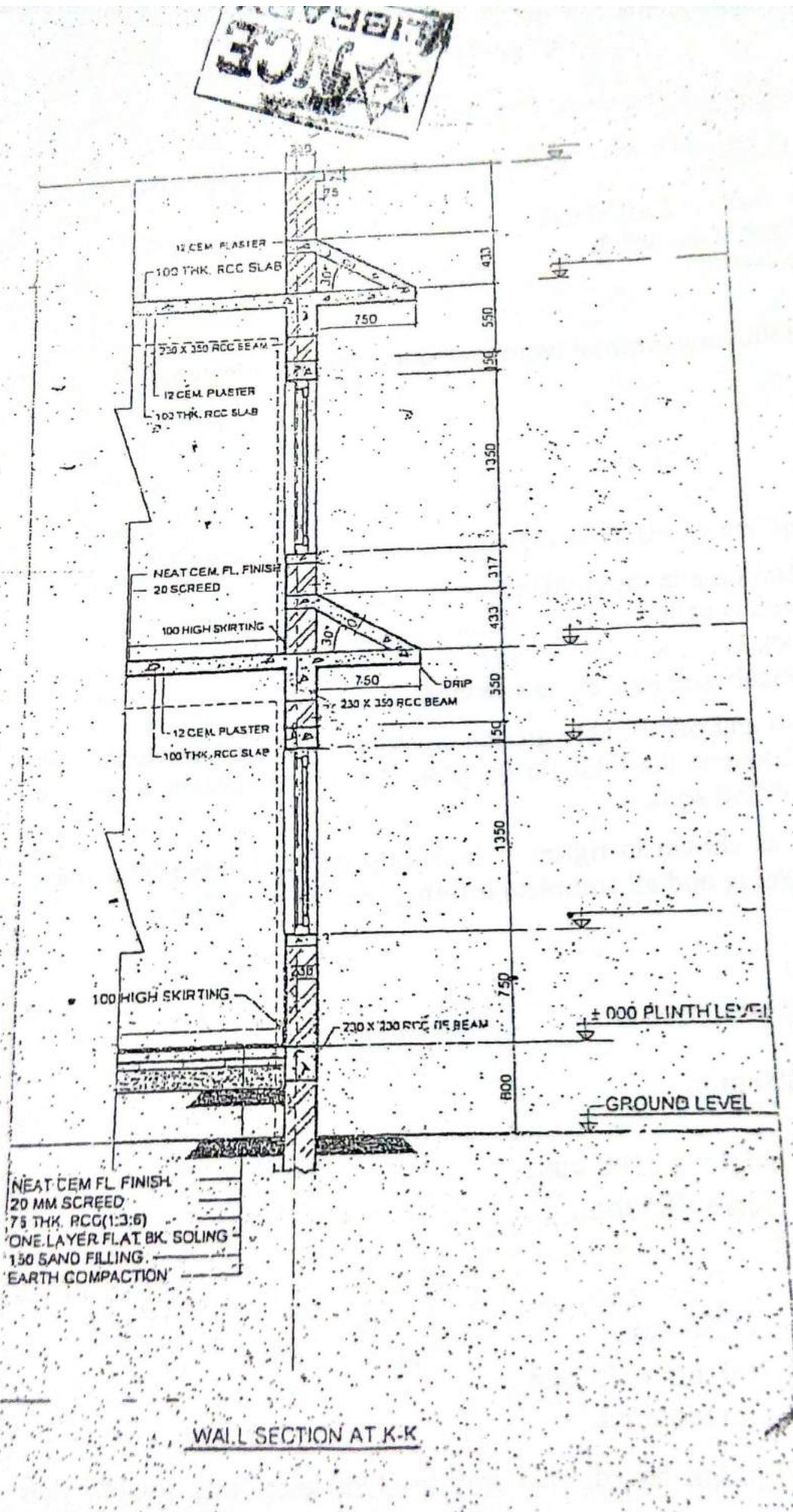
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- ✓ Assume suitable data if necessary.

1. Draw the hatching of the following material representation in 50mm×50mm box [2]
- Earth section
 - Wood section
 - Brick elevation
 - Stone section
2. Fill in the blank with appropriate words. (Use drawing sheet as answer paper.) [0.5×4]
- Minimum width of the staircase in the residence is meter.
 - Structure below the ground is called
 - Generally the size of brick is × × mm.
 - Exit pipe (outlet) from washbasin, sink etc is known as
3. The area of the plot is 0-4-2-0 and permissible ground coverage is 60%. Permissible built up area is 2310.1875 sq.ft. Calculate the FAR for the plot. Calculate the no of storey that can be built with plinth area of 850 sq.ft. [2]
4. Redraw the given floor plan as shown in figure 1. Including walls, column, grid lines, hatching with proper dimensioning and all complete information. (Scale 1:50). [12]

Given that

The size of column is 230×300,
 Wall width is 230 except specified,
 Thickness of slab is 100 mm.
 Height of the parapet wall is 1000 mm,
 Size of the beam is 230×350
 Sill height is 750 mm and lintel height is 2100 mm,
 Size of lintel and still band is 75 mm × 305 mm.
 Marble flooring of 18 mm is used.
 Thickness of plaster is 12 mm.
 Size of the plinth beam is 230 mm × 230 mm.
 Size of door and window frame is 100 mm × 75 mm
 Assume necessary dimension and data required.

5. a) Draw the symbol of sub distribution board, two way switch, telephone socket, wall bracket. [2]
- b) Draw the complete sanitary drawing given (figure 2) showing the following pipe line network with flow direction. (Scale 1''=2'-0'') [10]
- Hot water supply line of $\frac{1}{2}$ inch thick.
 - Cold water supply line of 1 inch diameter.
 - Waste line of 2 inch diameter.
 - Soil line of 4 inch diameter.
 - 2'-6''×5'-0'' Septic tank.
 - Soak pit with diameter 3 feet.
 - 2'-0''×2'-0'' Man hole.



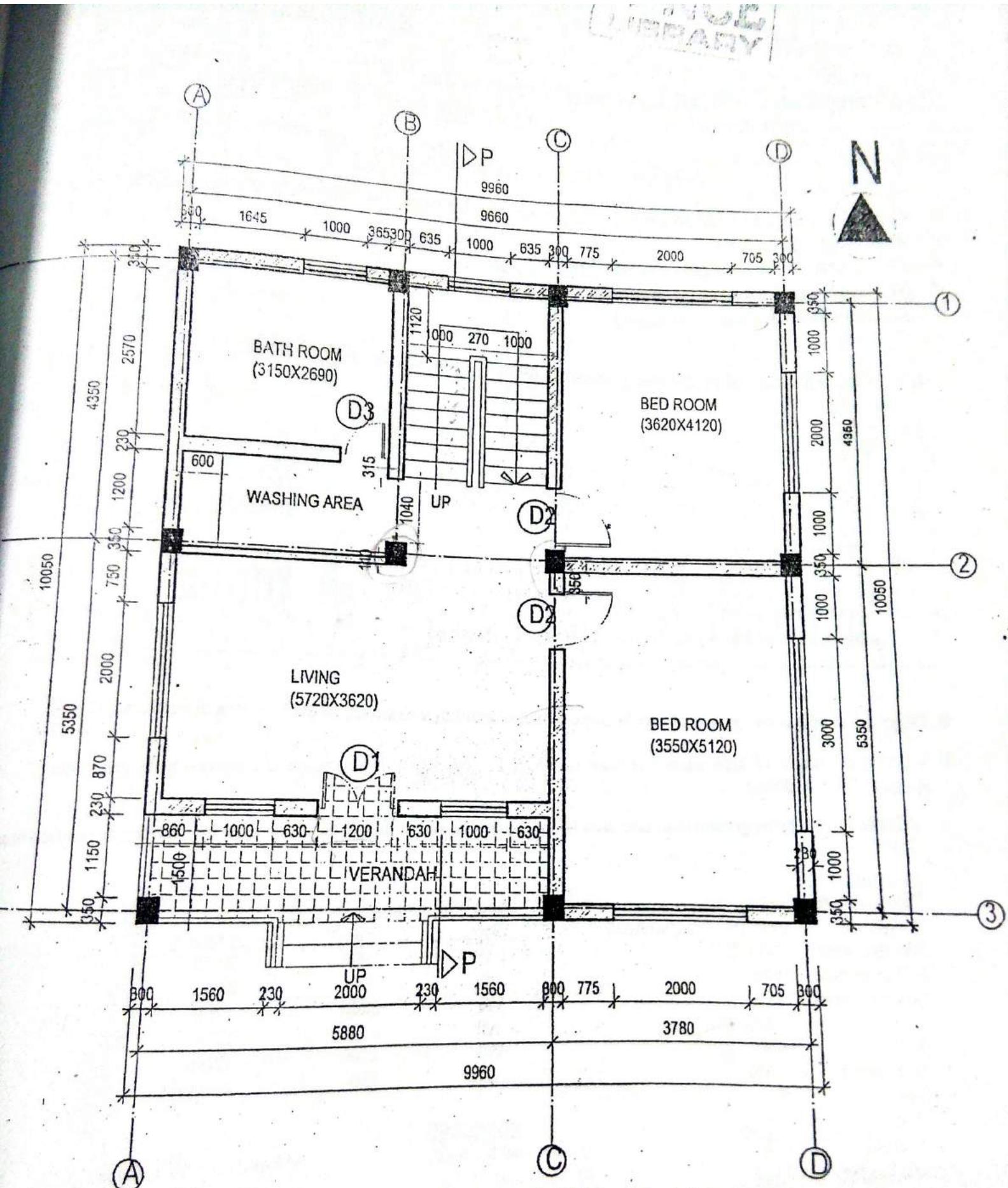
WALL SECTION AT K-K

ENRCL.	PERIODIC TEST / EXAMINATION	Full Marks	30
Level	BE	Pass Marks	12
Programme	BCE	Time	3 hrs.
Year / Part	II / II		

Subject: - Building Drawing (CE556)

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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)
 - The size of footing B2 and C2 are 3m×3m×2.5m [4+3+4]
 - 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

Exam.	NEW BACK (3000) STAGE 1	Full Marks	30
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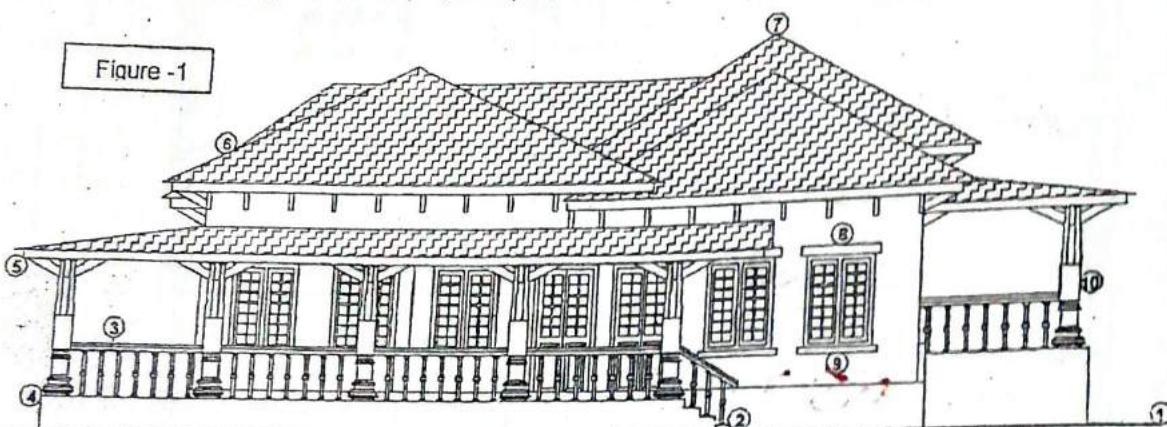
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1. Write down the name of the different parts of a building as shown in the figure 1 below.

[1]

Figure - 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

Description

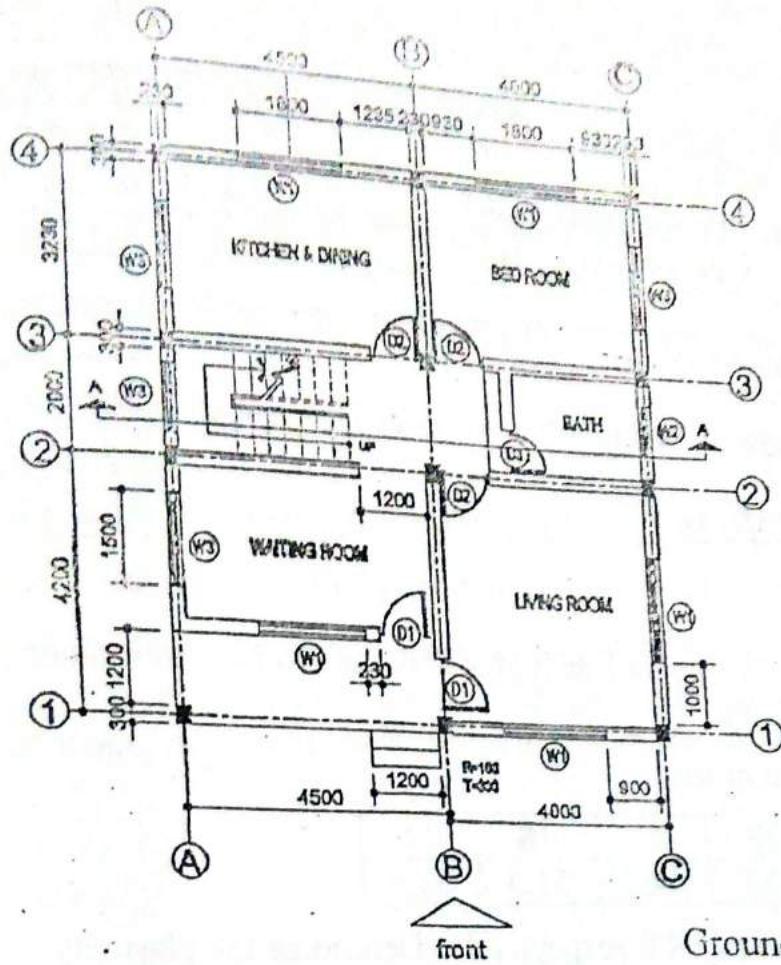
Column (RCC)	: 230 x 300
Wall(Brick)	: 230 (External/Internal)
Slab thickness	: 100(RCC)
Slab projection	: 600
Parapet Height.	: 750
Beam	: 230 x 350
Plinth	: 450
Floor Height	: 2800
Riser	: 175
Tread	: 250
Sill Height	: 900
Lintel Height	: 2100
Plinth Beam	: 230x230

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.



Ground Floor Plan

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")

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

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

* * *

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Subject: - Building Drawing

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- ✓ 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]

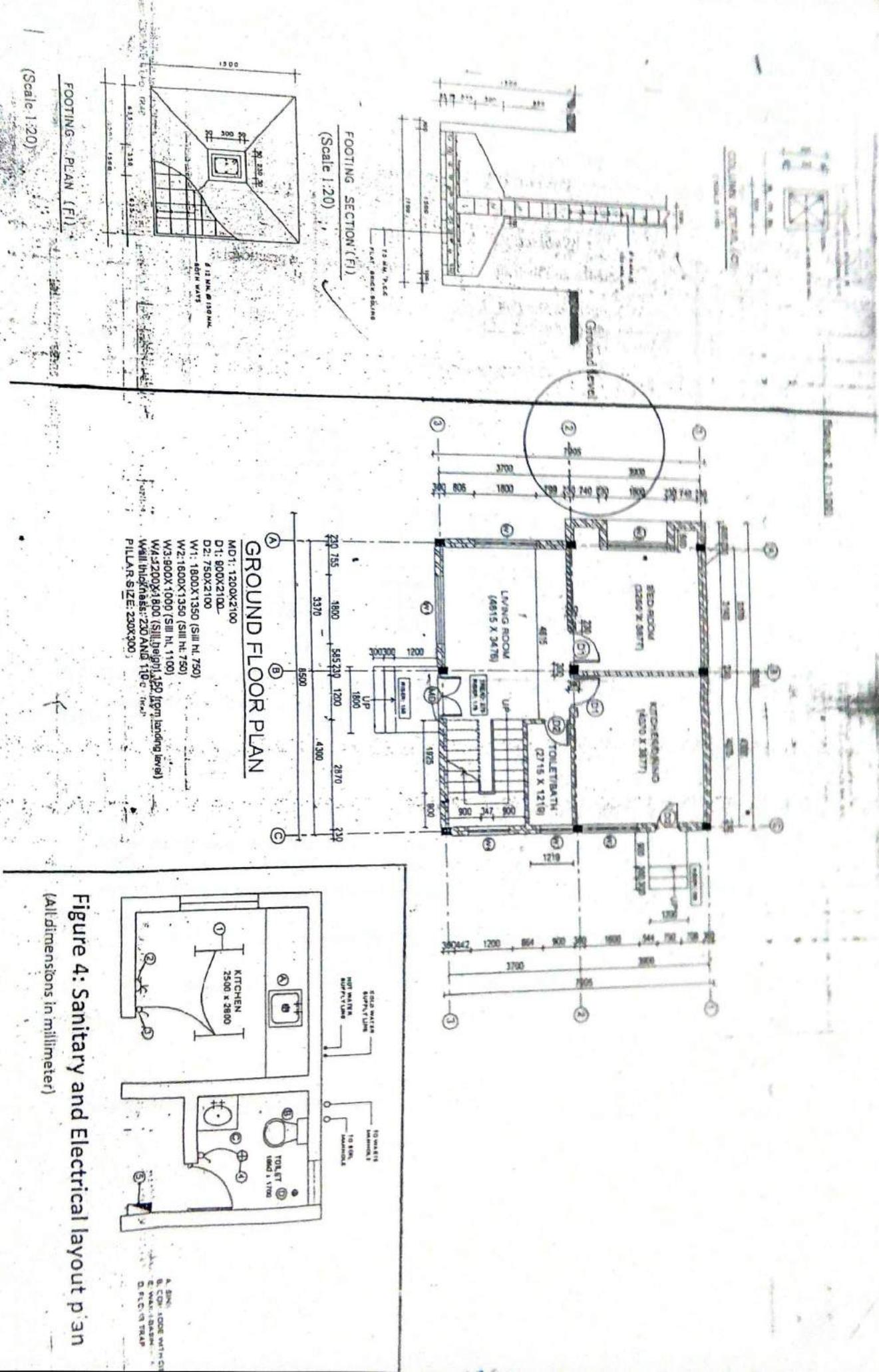


2. Draw the hatching symbol of Brick section and Earth. Box size for hatching is 4cm × 4cm. [0.5×2]
3. Redraw the given ground floor plan of figure 2 in detail including wall line, dimension, grid line, hatching and internal information. (Scale 1:100) [7+2+1+1+1]
4. Redraw the footing detail of a column 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. [0.5×4]
- 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 an area is 1500 sqm and ground coverage is 60%, calculate maximum ground floor area.....



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

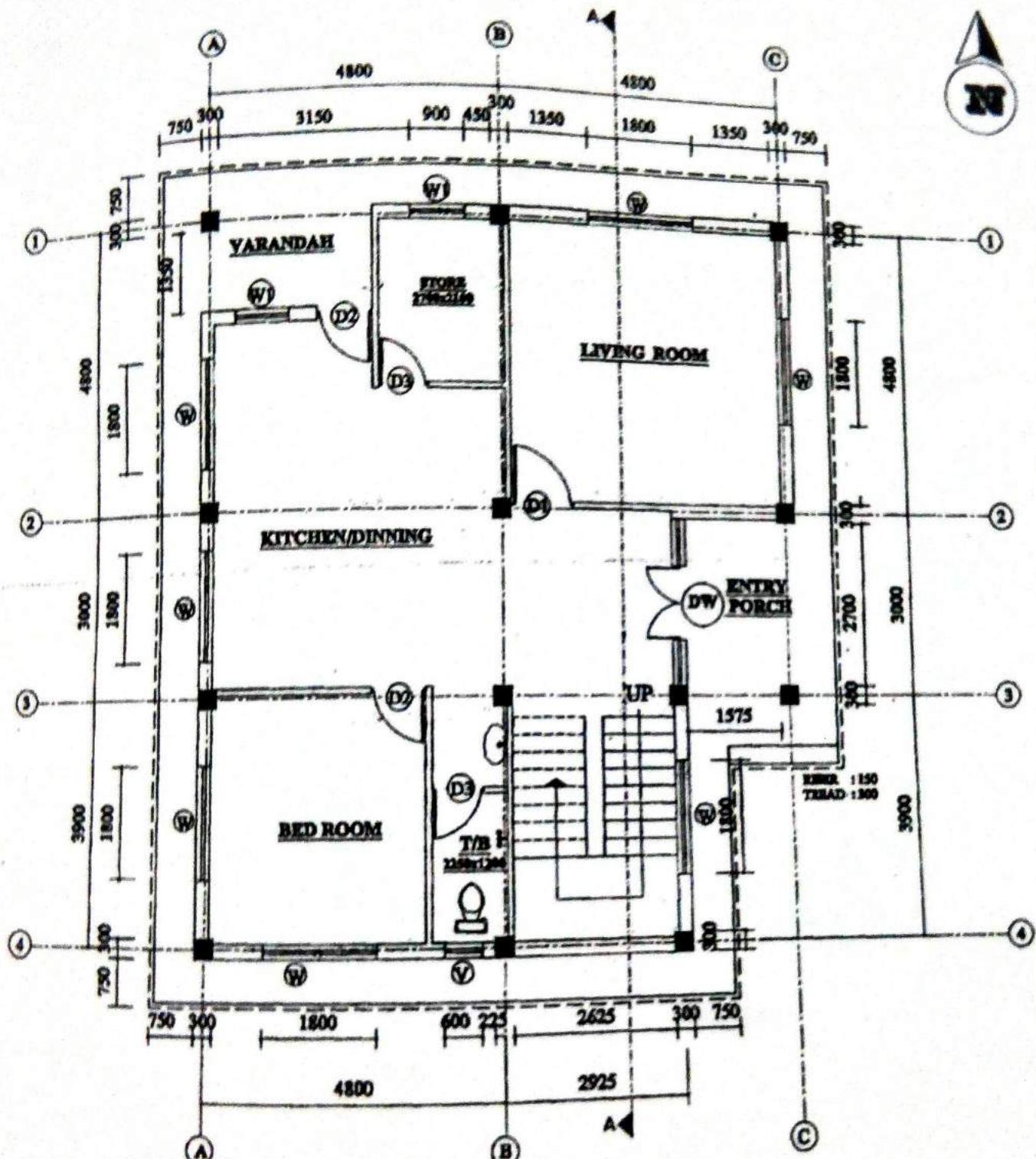
Subject: - Building Drawing (AR556)

- ✓ 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. Mention the elements in superstructure and substructure of building? (2)
2. Fill in the blanks. (2)
 - a) Symbol of three pole one way switch in electrical layout plan is
 - b) Area of 0-5-0-0 plot is equal to Sq.ft.
 - c) The outlet pipe connected from commode/ pan is known as
 - d) The minimum width of staircase in a flight in residential building is as per NBC.
3. The proposed area of plot in a commercial zone is 1800 Sq. ft. and permissible ground coverage is 60% with permissible FAR value 1.5. Calculate the permissible built up area and maximum number of stories that can be built with utilization of maximum permissible plinth area. (4)
4. Draw vertical section at A-A of building as shown in figure using appropriate drawing techniques with description given below. All dimensions are in mm and use scale 1:50. (12)

Column size	: 300x300	Riser	: 160
Wall thickness	: 230 (External), 110 (Internal)	Tread	: 275
Slab thickness	: 100	Stair width	: 1200
Parapet wall height	: 1000	Landing width	: 1200
Size of beam	: 230x350	Door DW	: 2700x2250
Sill height	: 750	Door D1	: 1050x2250
Lintel height	: 2250	Door D2	: 900x2250
Floor height	: 2880	Door D3	: 800 x2100
Size of sill and lintel band	: 50x230	Window W	: 1800x1500
Size of plinth beam	: 230x300	Window W1	: 900x1500
Thickness of marble flooring	: 18	Ventilation V	: 600x600
Thickness of P. C.C. (1:3:6)	: 75		
Thickness of stone soling	: 150		

5. Differentiate between as built drawing and measured drawing. Also, list down necessary drawings to be submitted to municipality for approval before construction of building. (4)
6. Draw trench plan of given plan in Question No.4 in scale 1:50 with following information. (6)
 - The sizes of footing are 2m x 2m x 2m.
 - The width of wall foundation is 0.5m
 - Assume other data, if necessary.



FLOOR PLAN
(DIMENSIONS IN MM)