TRIBHUVAN UNIVERSITY
INSTITUTE OF ENGINEERING
Examination Control Division
2078 Chaitra

Exam.	**Regular**		
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. 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 heigth 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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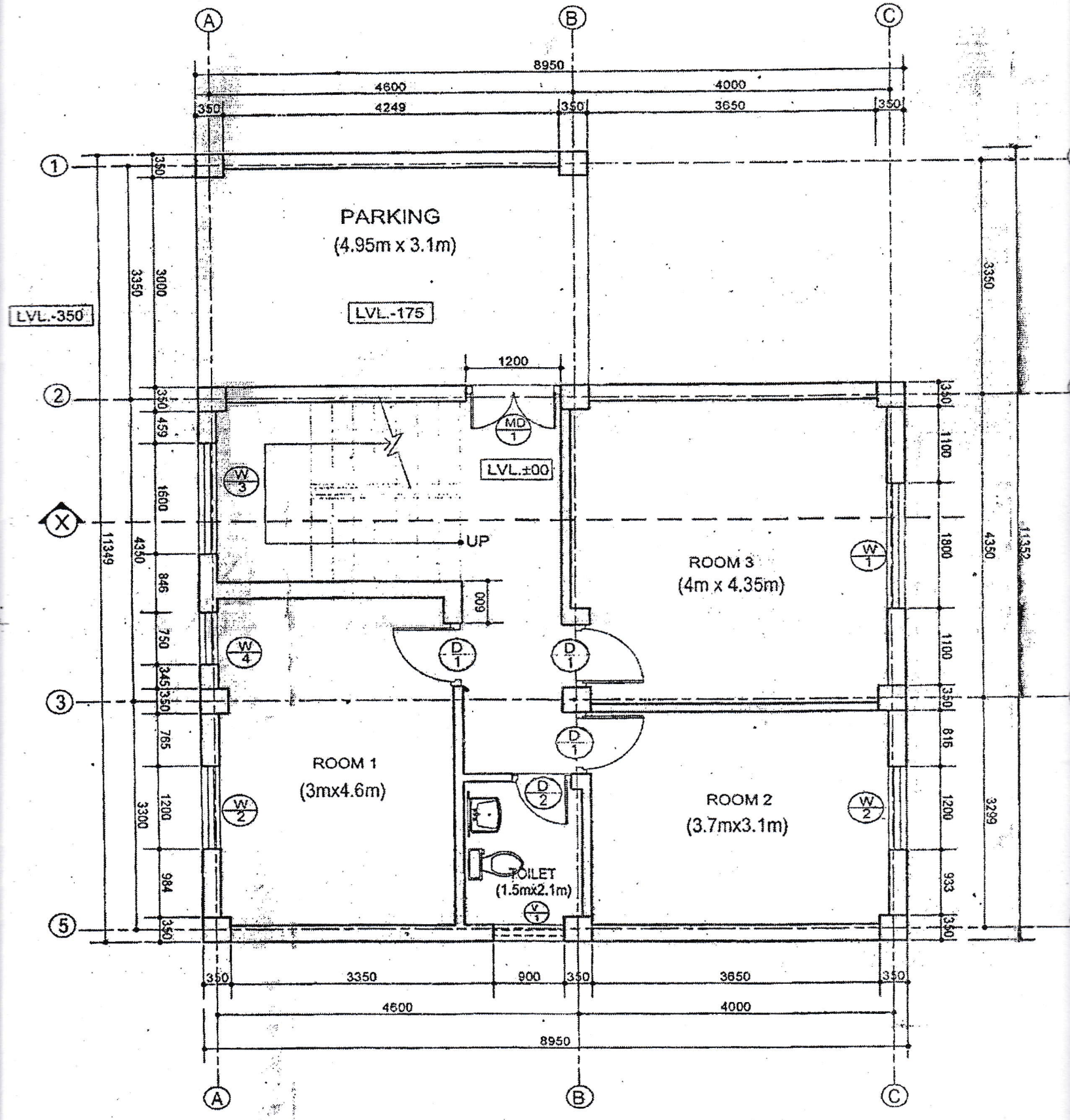

Figure A

GROUND FLOOR PLAN

AREA = 90 SQM.

(SCALE - 1:50)

(SHOW THE APPROPRIATE HATCH)

TRIBHUVAN UNIVERSITY
INSTITUTE OF ENGINEERING
Examination Control Division
2077 Chaitra

Exam.	Regular		
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.*
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- ✓ ***Necessary figures are attached herewith.***
- ✓ *Assume suitable data if necessary.*

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]

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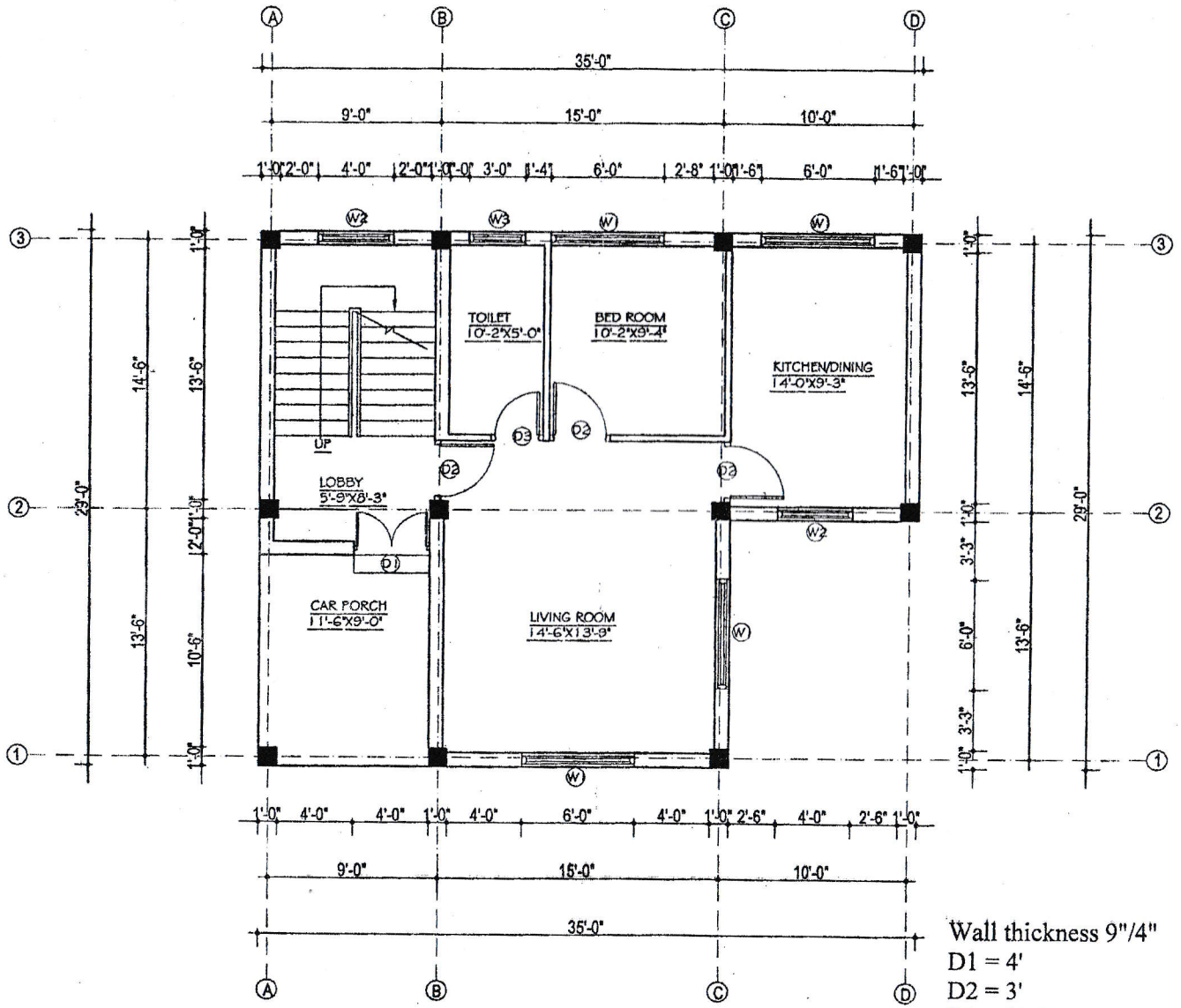

Wall thickness 9"/4"
D1 = 4'
D2 = 3'
D3 = 2'6"

GROUND FLOOR PLAN

AREA : 880 SQ.FT.

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

TRIBHUVAN UNIVERSITY
INSTITUTE OF ENGINEERING
Examination Control Division
2076 Baisakh

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. 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"=2'0")
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]

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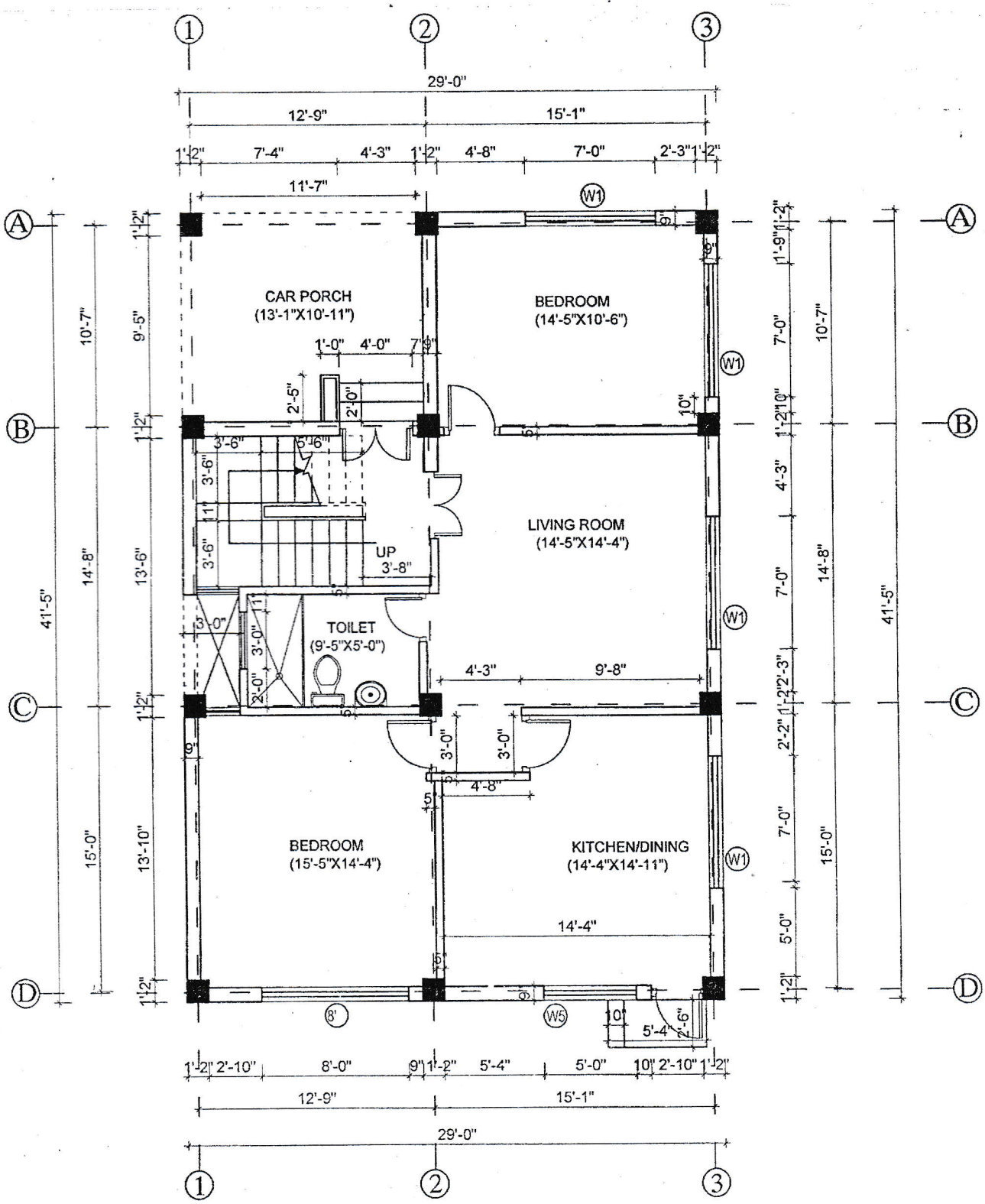

GROUND FLOOR PLAN

FIG 1

TRIBHUVAN UNIVERSITY
INSTITUTE OF ENGINEERING
Examination Control Division
2076 Bhadra

Exam.	Regular		
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.*
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- ✓ *Assume suitable data if necessary.*

1. Draw the hatching symbols in the box of 40 × 40 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 given floor plan of building in a complete form giving all necessary description information. (Scale 1:50) [12]
4. Draw a vertical section detail through sill and lintel of any window from the given plan in the scale 1" = 10' - 0". [6]
5. Draw the staircase section of given floor plan in the scale 1:50. (Assume other necessary datas except given if necessary) [8]

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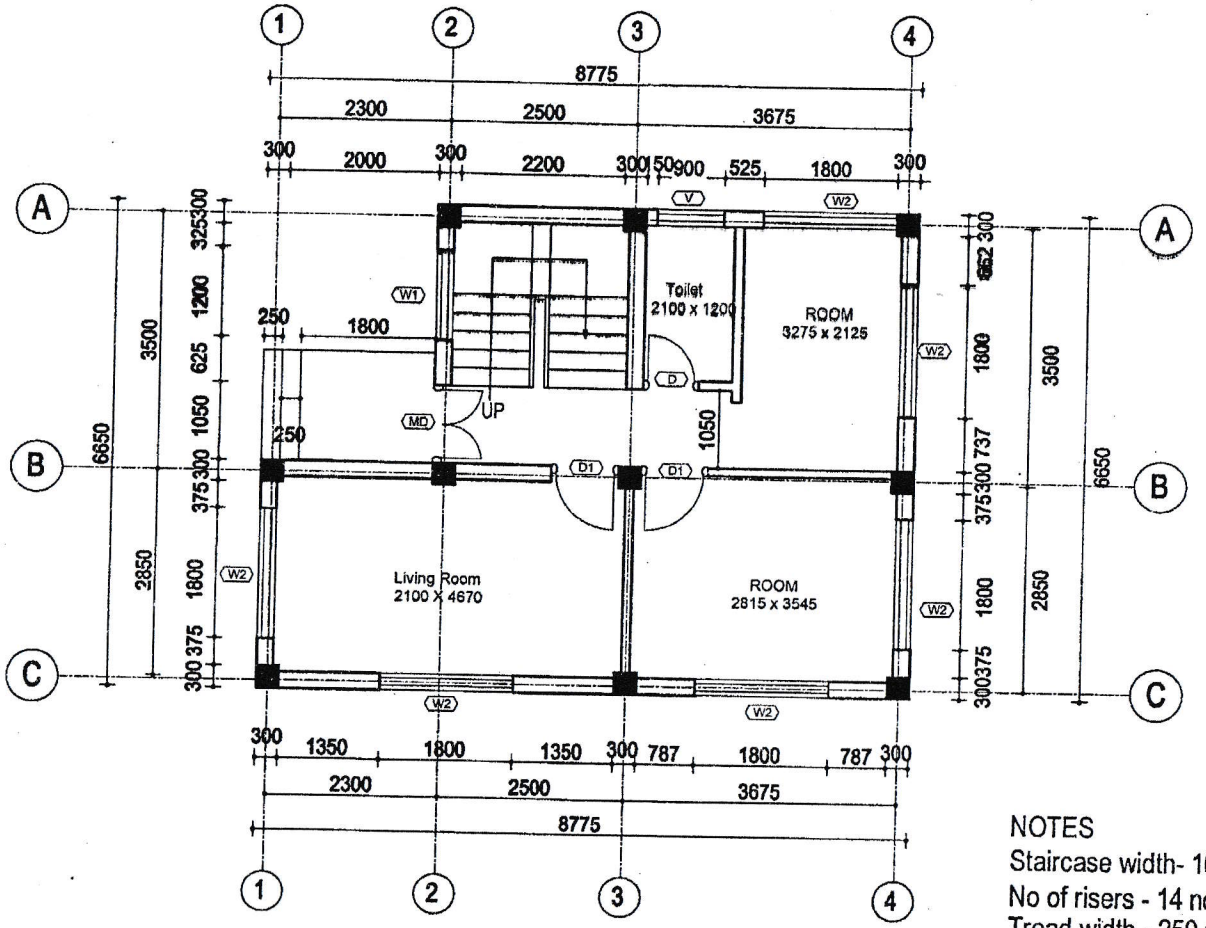

Fig 1

Opening Schedule

SN.	PARTICULARS		NO	WIDTH	HEIGHT
1	DOORS	MD	1	1050	2100
2	DOORS	D	1	750	2100
3	DOORS	D1	2	900	2100
4	VENTILATION	V	1	900	600
5	WINDOW	W1	1	1200	1350
6	WINDOW	W2	5	1800	1350

NOTES

Staircase width- 1050 mm
No of risers - 14 nos
Tread width - 250 mm
Riser Ht - 175 mm
Column size - 300 X 300 mm
External Wall Thickness - 230 mm
Internal Wall Thickness - 110 mm

07 TRIBHUVAN UNIVERSITY
INSTITUTE OF ENGINEERING
Examination Control Division
2075 Baisakh

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

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.

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07 TRIBHUVAN UNIVERSITY
INSTITUTE OF ENGINEERING
Examination Control Division
2075 Bhadra

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

Subject: - Building Drawing *(AR556)*

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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. 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"x7'-6"
Door D2	: 3'-0"x7'-6"
Door D3	: 2'-6"x7'-6"
Window W	: 6'-0"x4'-6"
Window W1	: 4'-6"x4'-6"
Ventilation V	: 2'-0"x2'-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 mmϕ vertical bars in column and 8mmϕ stirrups @5"c/c
   - 12mmϕ 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")

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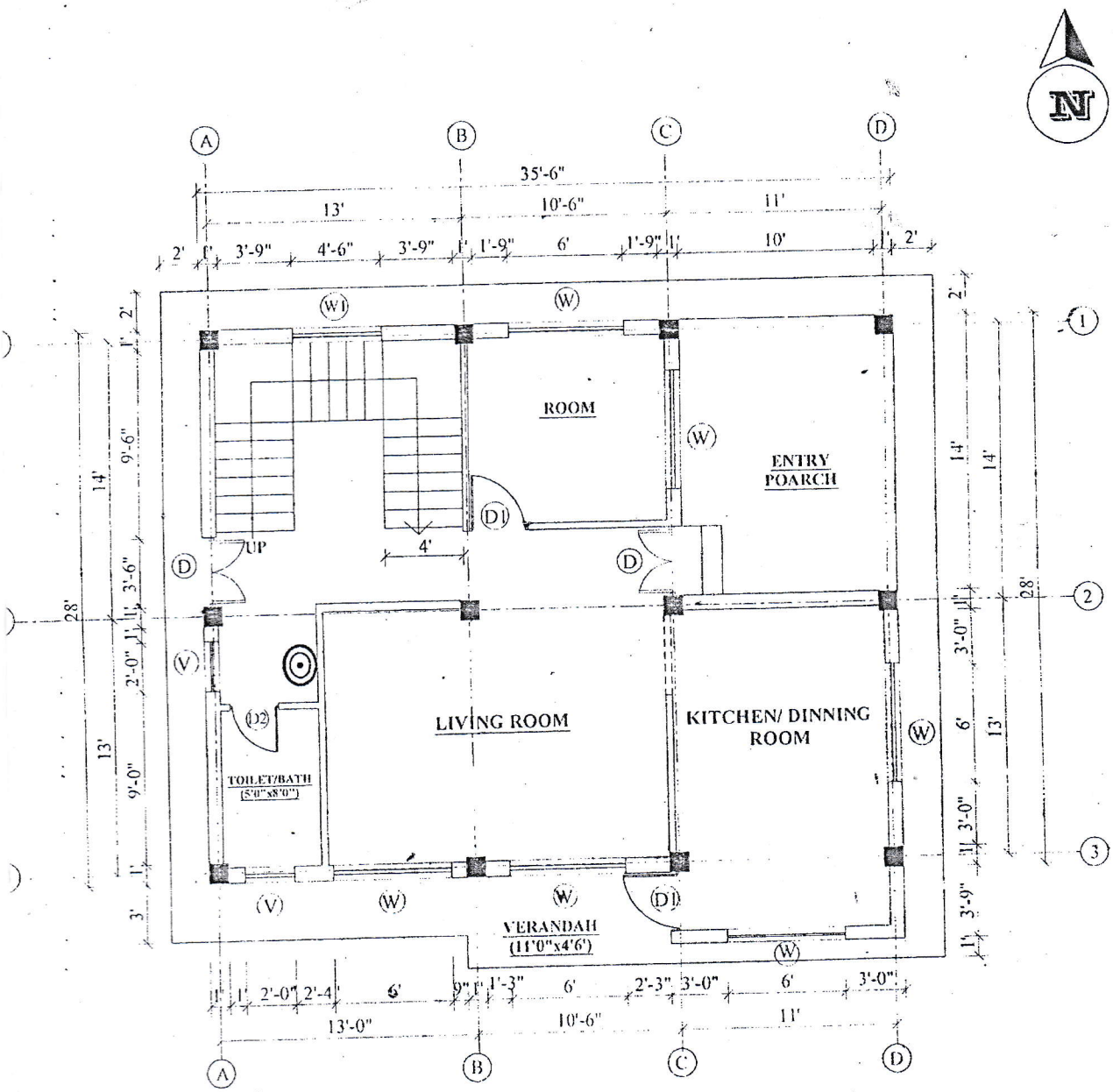
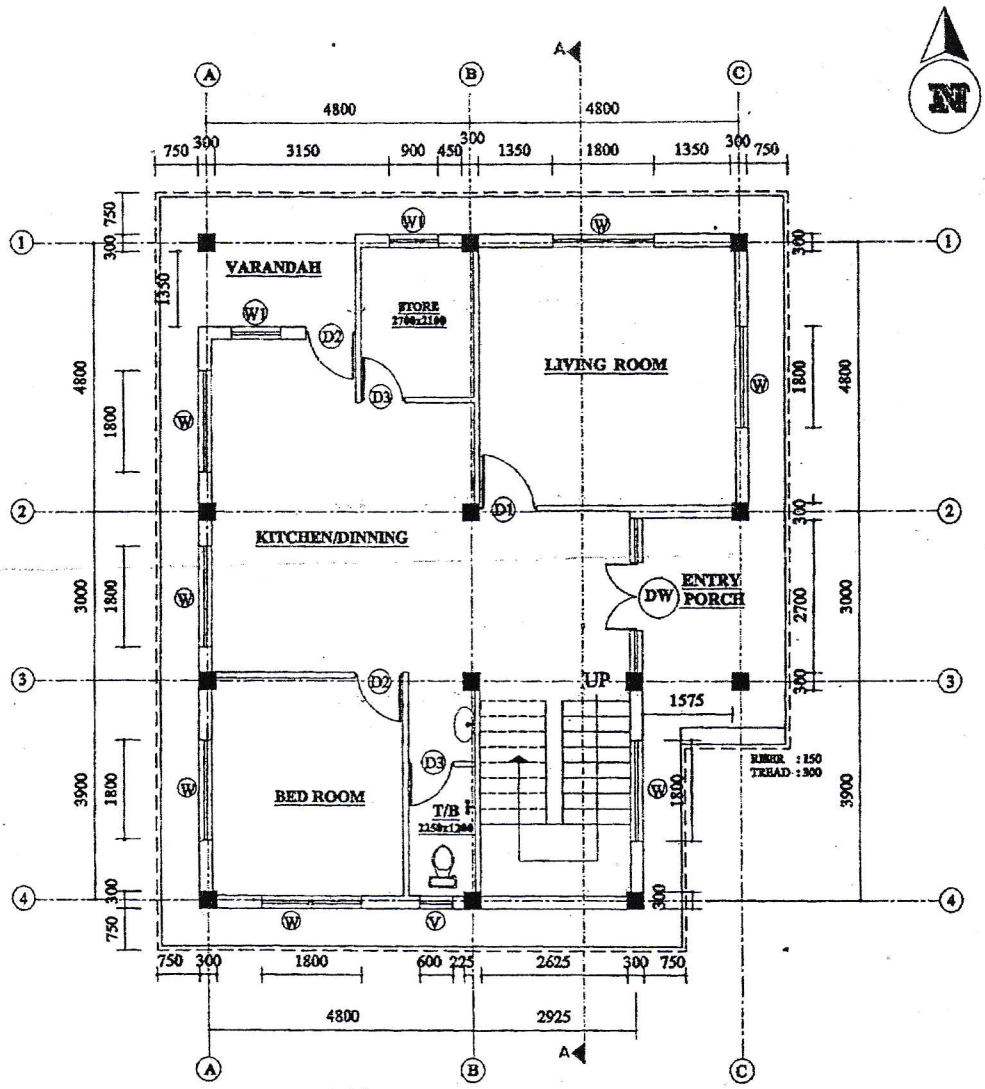


FLOOR PLAN

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



FLOOR PLAN

(DIMENSIONS IN MM)

(98)

07 TRIBHUVAN UNIVERSITY
INSTITUTE OF ENGINEERING
Examination Control Division
2074 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. 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'

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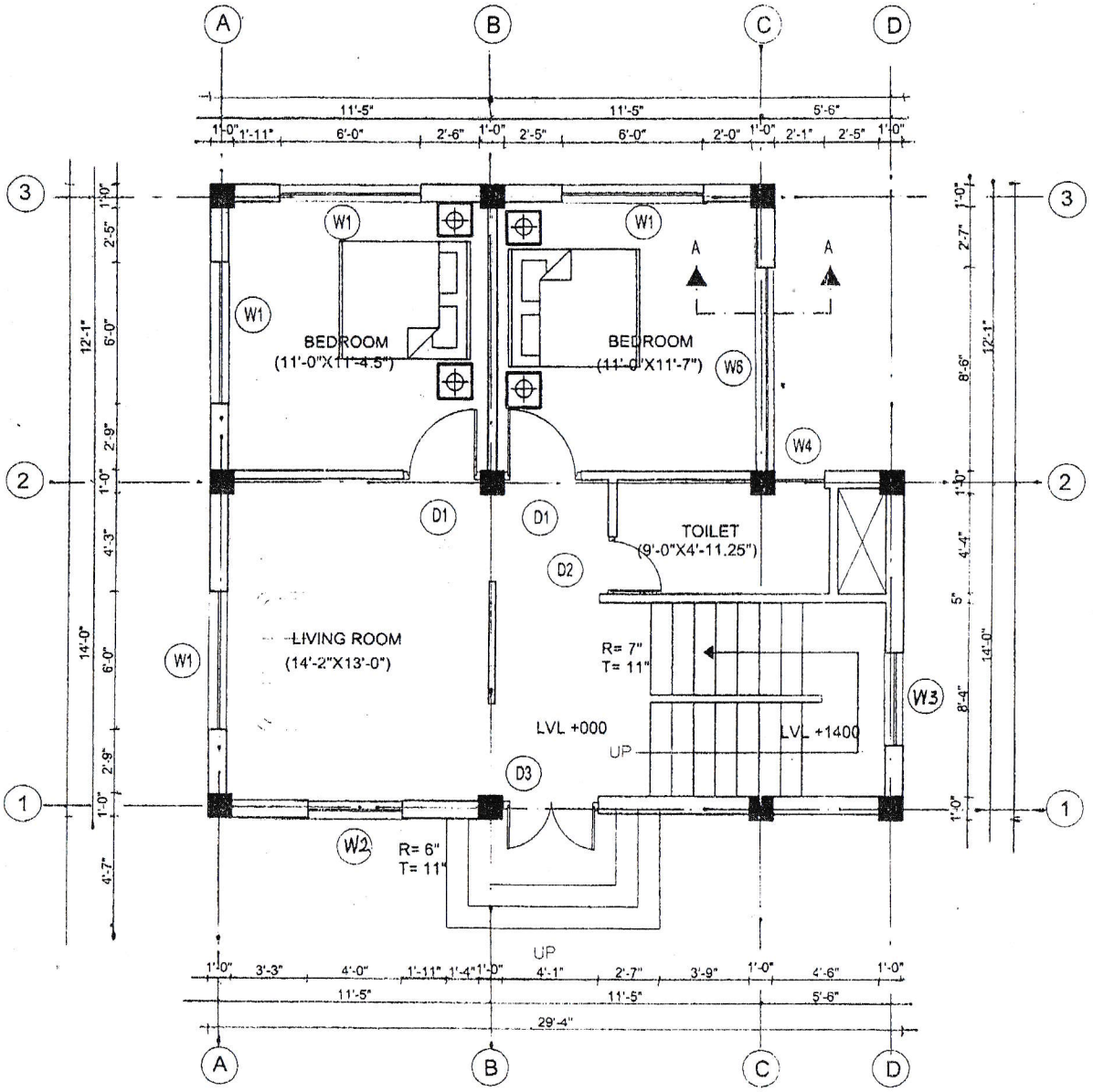

GROUND FLOOR PLAN

AREA : 889.23 SQ.FT

07 TRIBHUVAN UNIVERSITY
INSTITUTE OF ENGINEERING
Examination Control Division
2073 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.*
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- ✓ *Assume suitable data if necessary.*

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]
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: 16mmdia. 8 number, plinth height: 2'-0". Scale: 1"=1'. Assume necessary dimensions. [6]

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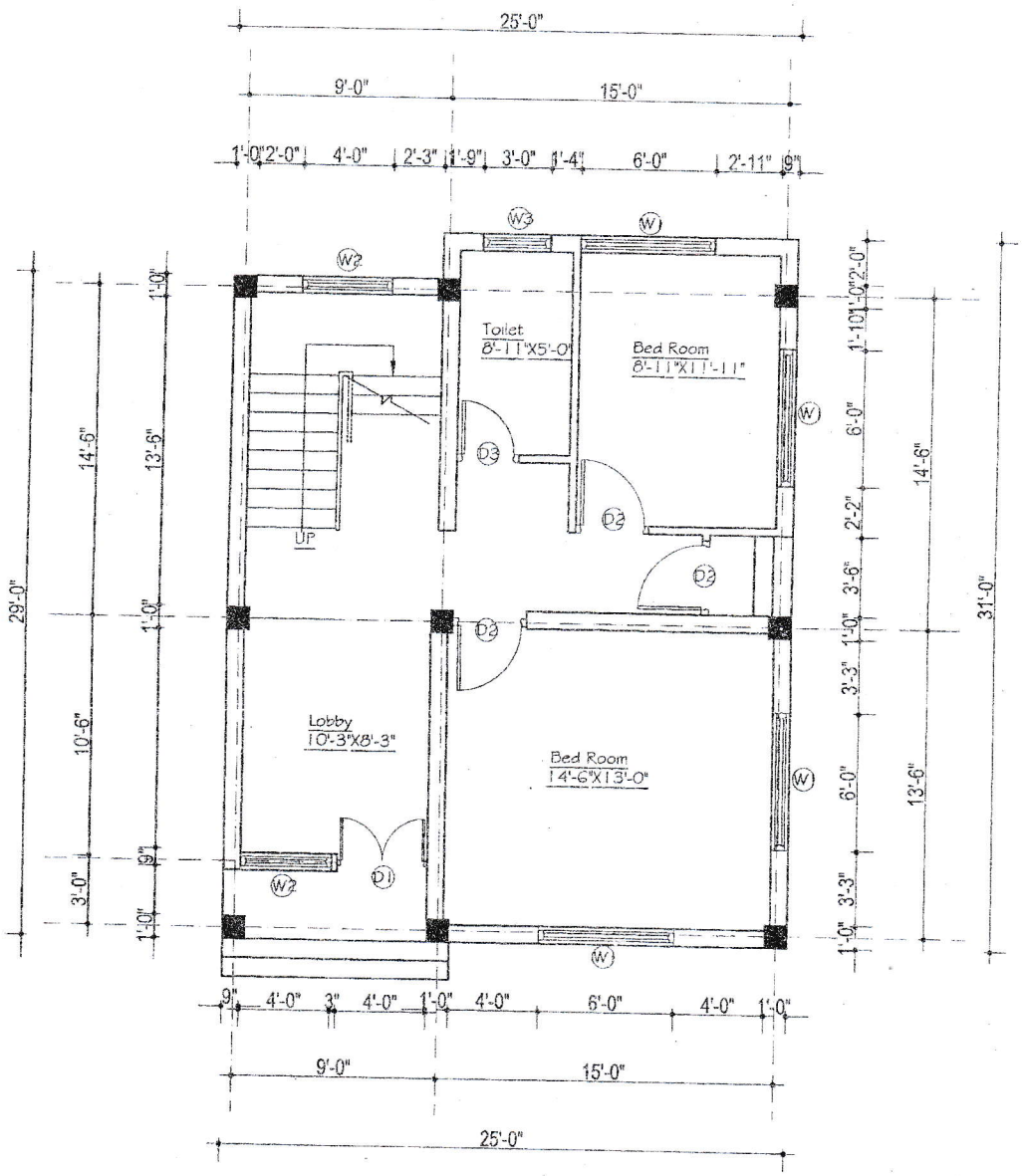

GROUND FLOOR PLAN

AREA : 756.50 SQ.FT.

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

TRIBHUVAN UNIVERSITY
INSTITUTE OF ENGINEERING
Examination Control Division
2073 Magh

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)*

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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]

Description	Door/Windows Schedule	
Column size : 300 x 300	Symbol	Width
Wall thickness : 230/110 (external/internal)	D1	1000
Tread Width: 275	D2	900
Riser Height: 175	D3	750
Landing Width: 1000	W1	2500
	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]

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]

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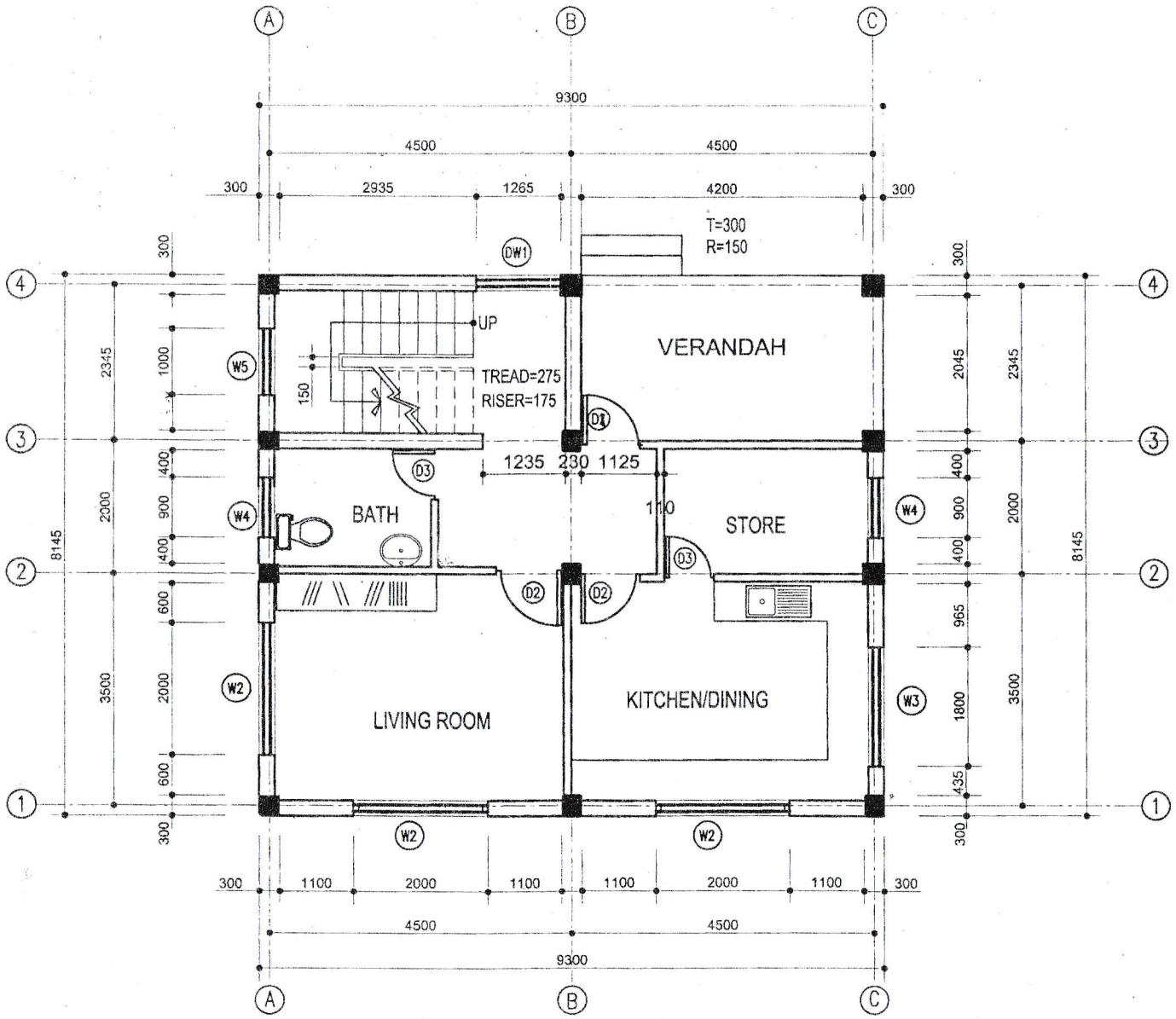

GROUND FLOOR PLAN

07 TRIBHUVAN UNIVERSITY
INSTITUTE OF ENGINEERING
Examination Control Division
2072 Ashwin

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

Subject: - Building Drawing *(CE556)*

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- ✓ *Attempt **All** questions.*
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- ✓ ***Necessary figures are attached herewith.***
- ✓ *Assume suitable data if necessary.*

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: [2]
   i) Brick wall in section
   ii) Concrete in section
   iii) Timber in section
   iv) Timber in elevation

   b) Draw symbol of: [2]
   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:

Brick wall Thickness : 230/110 (ext./int.)
Steps Tread : 300
Steps Riser : 150
Floor Slab : 100
Slab beam : 230 x 350
Lintel beam : 230 x 150
Sill beam : 230 x 75
Floor Height : 2800
Sill Height : 900
Plinth height : 450
Slab projection : 600

Door/Window Schedule:

D1 : 1200 x 2100
D2 : 900 x 2100
D3 : 750 x 2100

W1 : 2000 x 1200
W2 : 1000 x 1200

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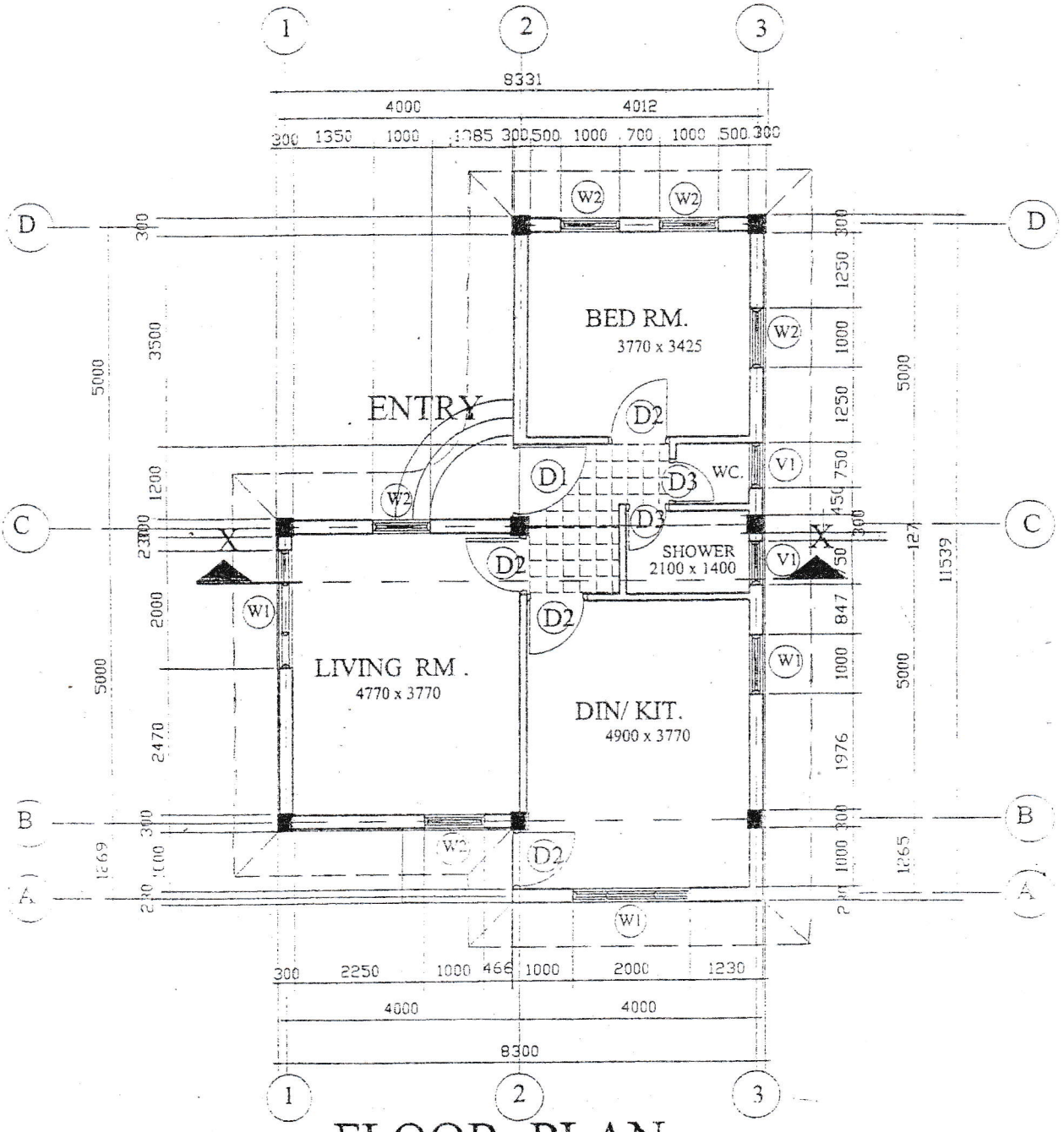
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2
3
8331
4000
4012
300 1350 1000 1085 300 500 1000 700 1000 500 300
D
C
B
A
W2
W1
D1
D2
D3
V1
BED RM.
3770 x 3425
ENTRY
WC.
SHOWER
2100 x 1400
LIVING RM.
4770 x 3770
DIN/ KIT.
4900 x 3770
300 2250 1000 466 1000 2000 1230
4000
4000
8300
3500
5000
1200
2300
2000
2470
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FLOOR PLAN

07 TRIBHUVAN UNIVERSITY
INSTITUTE OF ENGINEERING
Examination Control Division
2072 Magh

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

1. Draw the hatching pattern for the following material representation. Use 5cm x 5cm box size. Use suitable scale. [2]
   a) Brick Section
   b) 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]
   a) Angle of light Plane is.....
   b) Right of Way measured from.....
   c) One Ropani is equal to ..... Aana.
   d) 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]
   a) Staircase Plan (**Scale:** 1" =2'-0")
   b) Staircase Section at M-M(**Scale:** 1" =2'-0")

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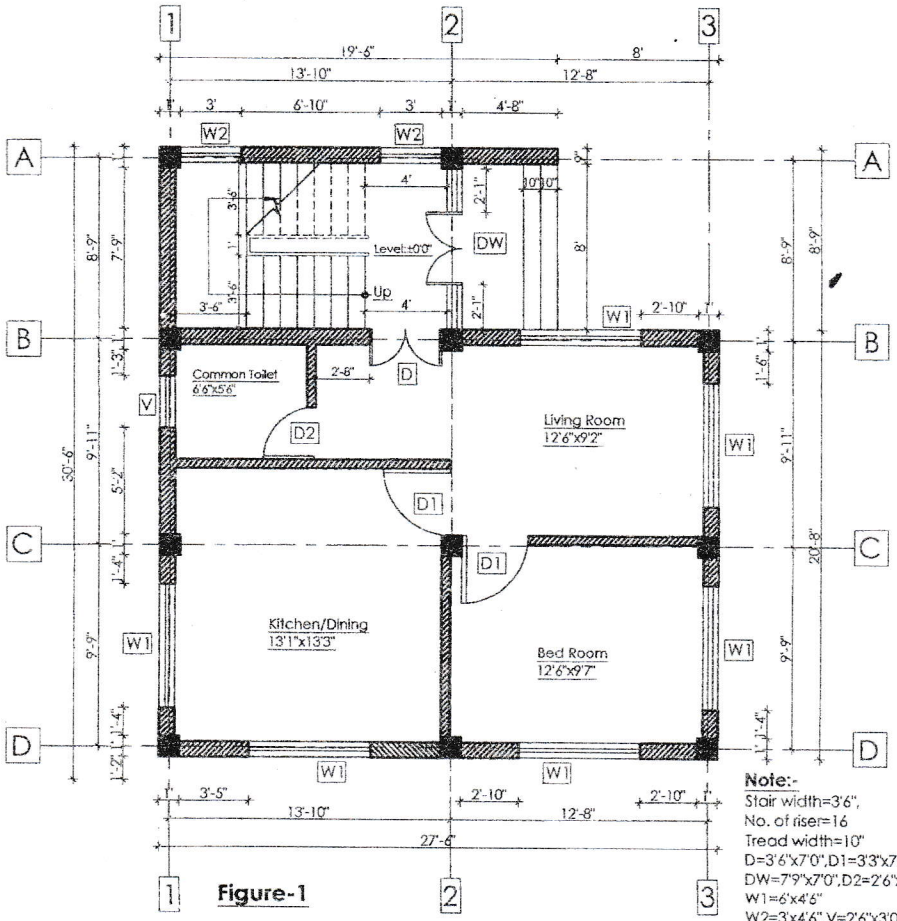

Figure-1

Ground Floor Plan

Scale:1:48

Note:-
Stair width=3'6",
No. of riser=16
Tread width=10"
D=3'6"x7'0",D1=3'3"x7'0"
DW=7'9"x7'0",D2=2'6"x7'0"
W1=6'x4'6"
W2=3'x4'6",V=2'6"x3'0"
Column size=12"x12"
External wall thickness=9"
Internal wall thickness=5"

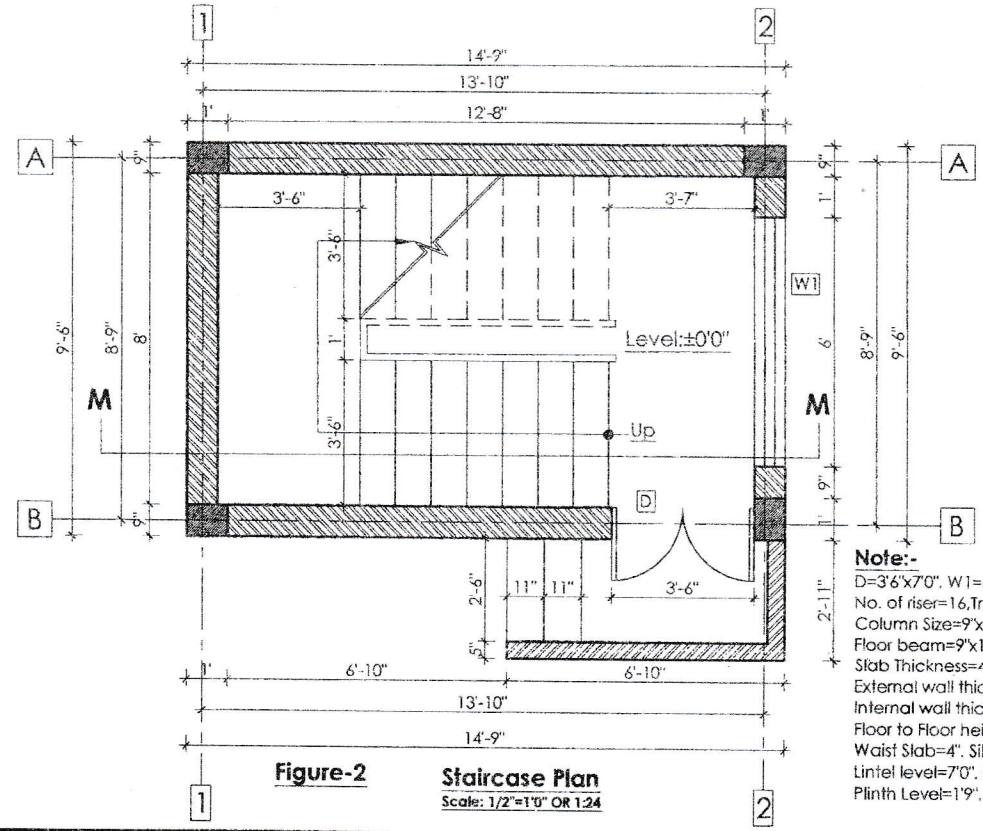

Figure-2

Staircase Plan

Scale: 1/2"=1'0" OR 1:24

Note:-
D=3'6"x7'0", W1=6'x4'6"
No. of riser=16,Tread width=11"
Column Size=9"x12"
Floor beam=9"x1'2"
Slab Thickness=4",Stair Width=3'6"
External wall thickness=9"
Internal wall thickness=5"
Floor to Floor height =9'4",
Waist Slab=4". Sill level=2'6"
Lintel level=7'0". Riser height=7"
Plinth Level=1'9".

07 TRIBHUVAN UNIVERSITY
INSTITUTE OF ENGINEERING
Examination Control Division
2071 Bhadra

Exam.	[redacted]		
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. 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

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.

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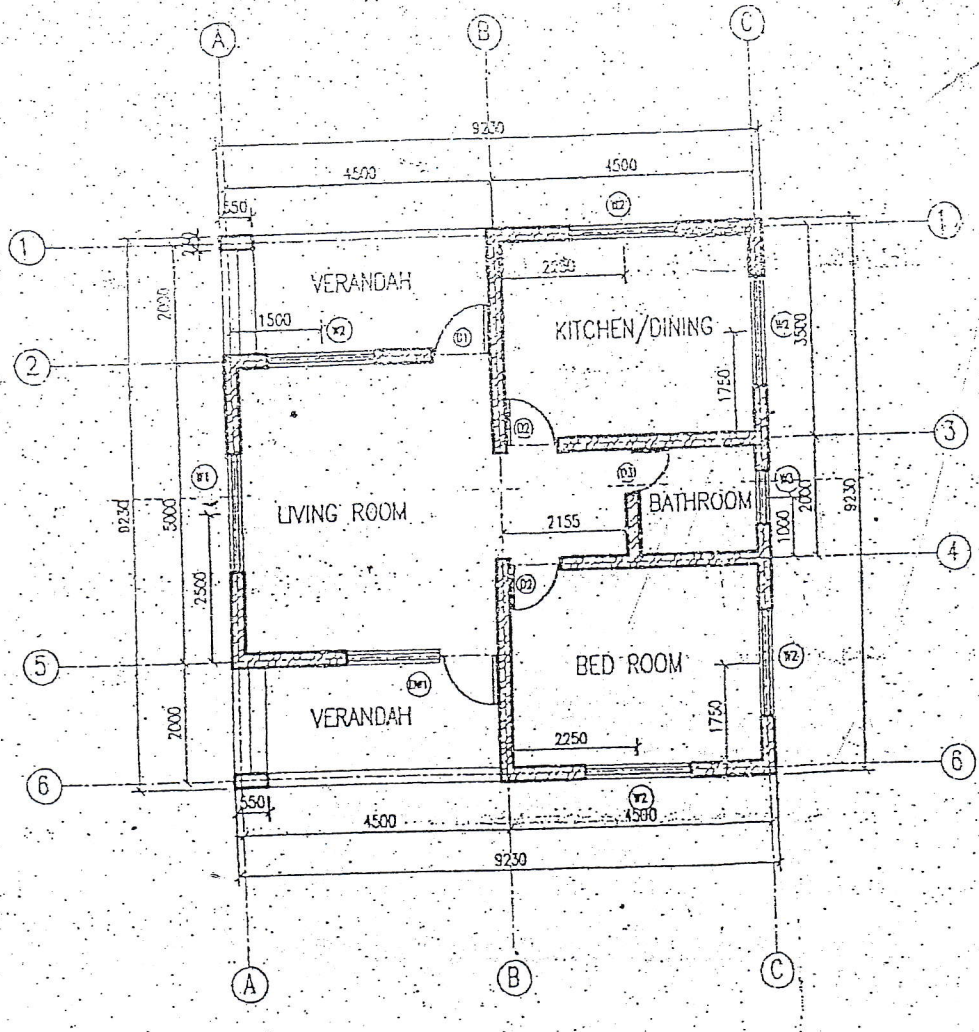
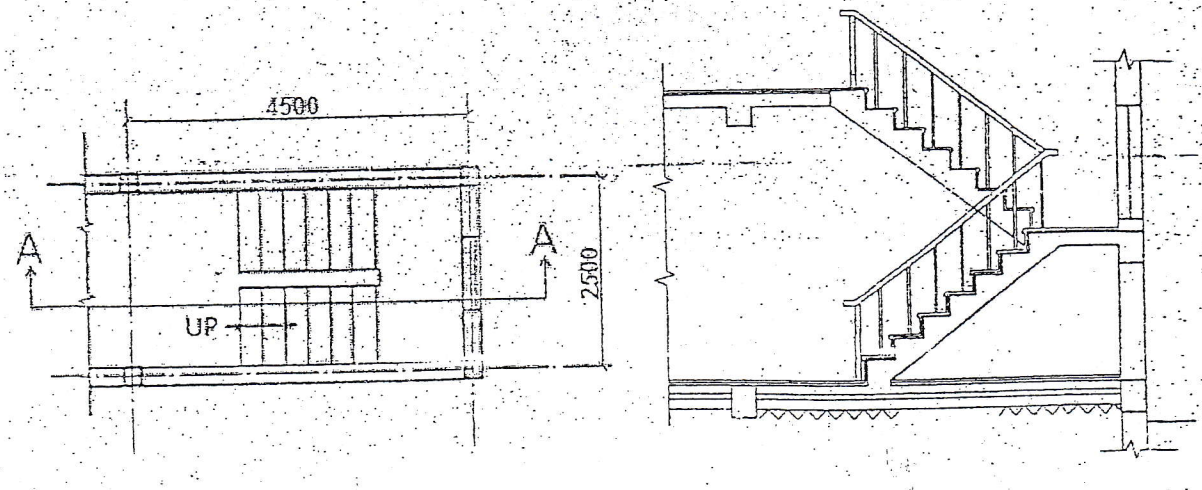


PLAN



Plan

Section at A-A

(4)

04 TRIBHUVAN UNIVERSITY
INSTITUTE OF ENGINEERING
Examination Control Division
2071 Magh

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 *(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. 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

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06 TRIBHUVAN UNIVERSITY
INSTITUTE OF ENGINEERING
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]
   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
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

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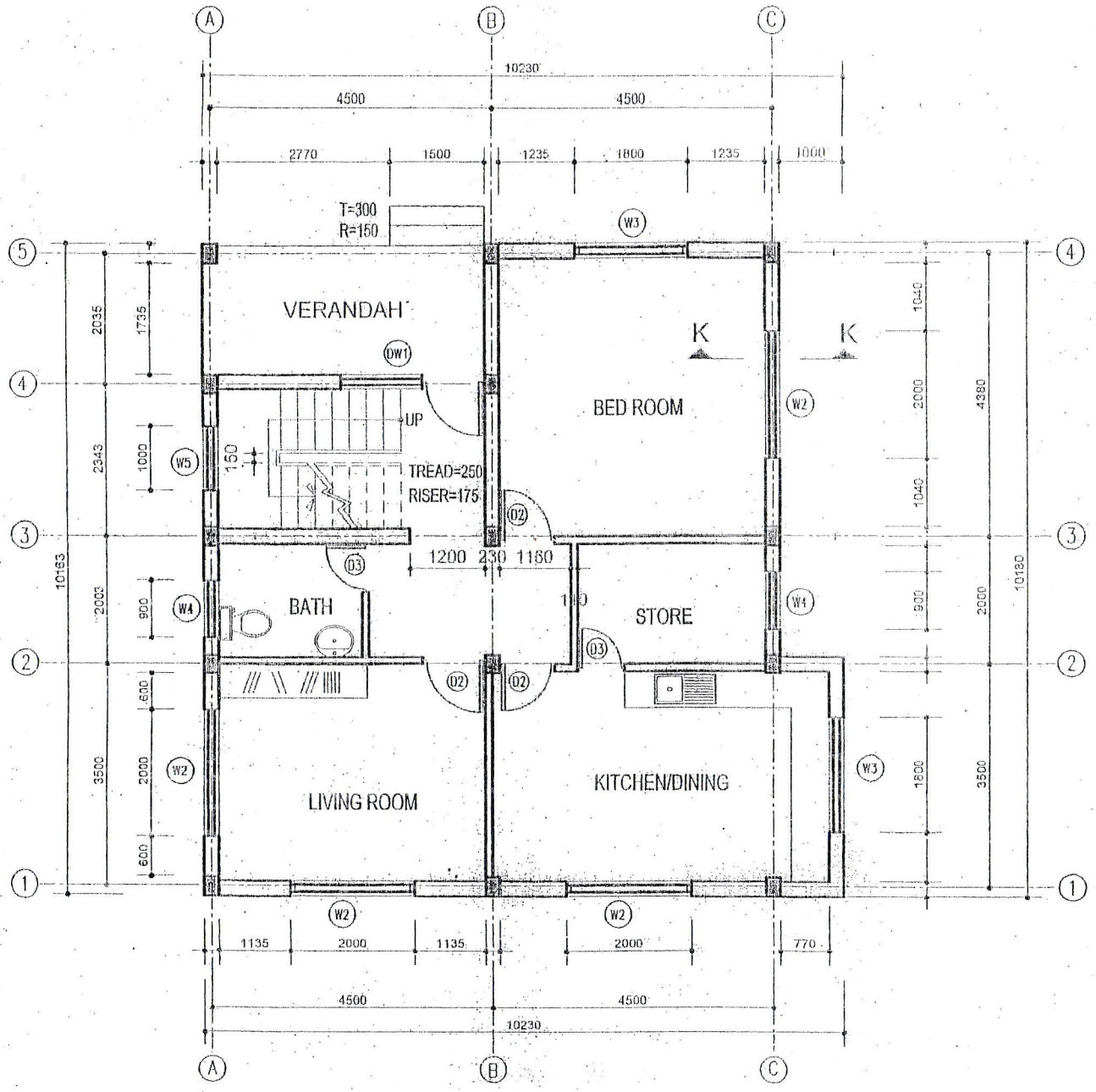

GROUND FLOOR PLAN