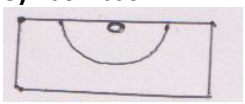
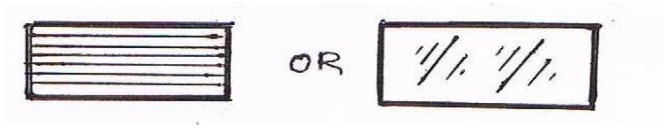
WINTER– 17 EXAMINATION

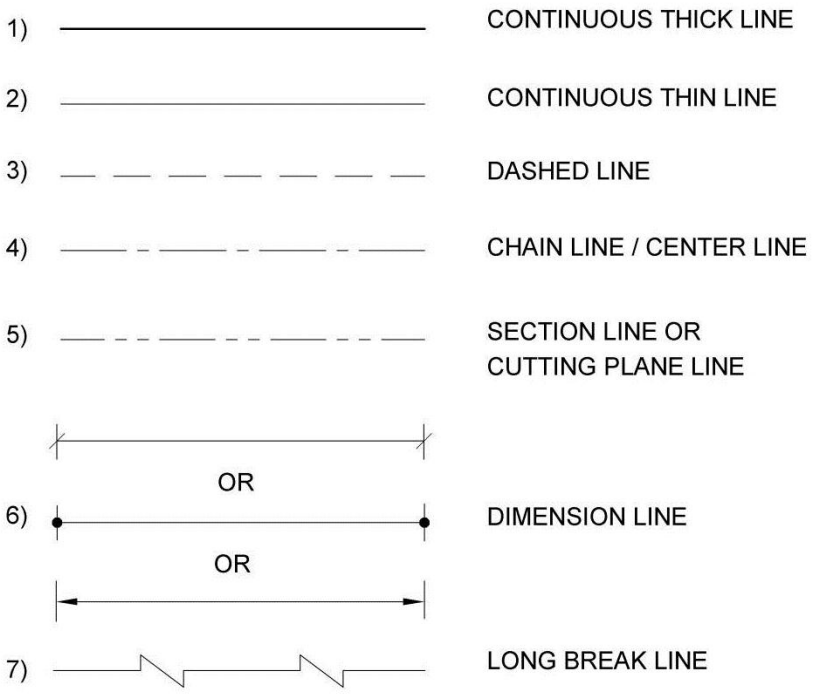
Subject Name: Building Drawing **Model Answer** Subject Code: 17309

Important Instructions to examiners:

1) The answers should be examined by key words and not as word-to-word as given in the model answer scheme.
2) The model answer and the answer written by candidate may vary but the examiner may try to assess the understanding level of the candidate.
3) The language errors such as grammatical, spelling errors should not be given more Importance (Not applicable for subject English and Communication Skills.
4) While assessing figures, examiner may give credit for principal components indicated in the figure. The figures drawn by candidate and model answer may vary. The examiner may give credit for any equivalent figure drawn.
5) Credits may be given step wise for numerical problems. In some cases, the assumed constant values may vary and there may be some difference in the candidate's answers and model answer.
6) In case of some questions credit may be given by judgement on part of examiner of relevant answer based on candidate's understanding.
7) For programming language papers, credit may be given to any other program based on equivalent concept.

Q. No.	Sub Q. N.	Answer	Marking Scheme
Q.1	a)	Attempt any **Three** of the following. i) Draw graphical symbols for following as per IS 962-1989. **1)concrete** Ans :-  **2)Woowork**  **3)wash basin**  **4)Glass** 	**3** x0 **4** = 12 **marks** **04 (*Note- 1marks for each symbols)**

ii) List any four types of line with sketch



Any Four
01 Mark for each type

iii) Define:

1)Roominess

The psychological feeling about the bigness or smallness of space, e.g. of a room, is called roominess. It is common observation that a square room appears smaller than a rectangular room of exactly the same area. — 02

2) Privacy: There are two consideration to the principle of privacy

a) External Privacy : This means privacy of the entire building from surrounding buildings. Privacy from noise and pollution from the road. Also privacy from congestion due to crowding of buildings. — 01

b) Internal Privacy:

This means prevention of direct view inside any room from any other room or from passage. Proper placement of doors ensures the internal privacy. — 01

iv) State the minimum dimensions

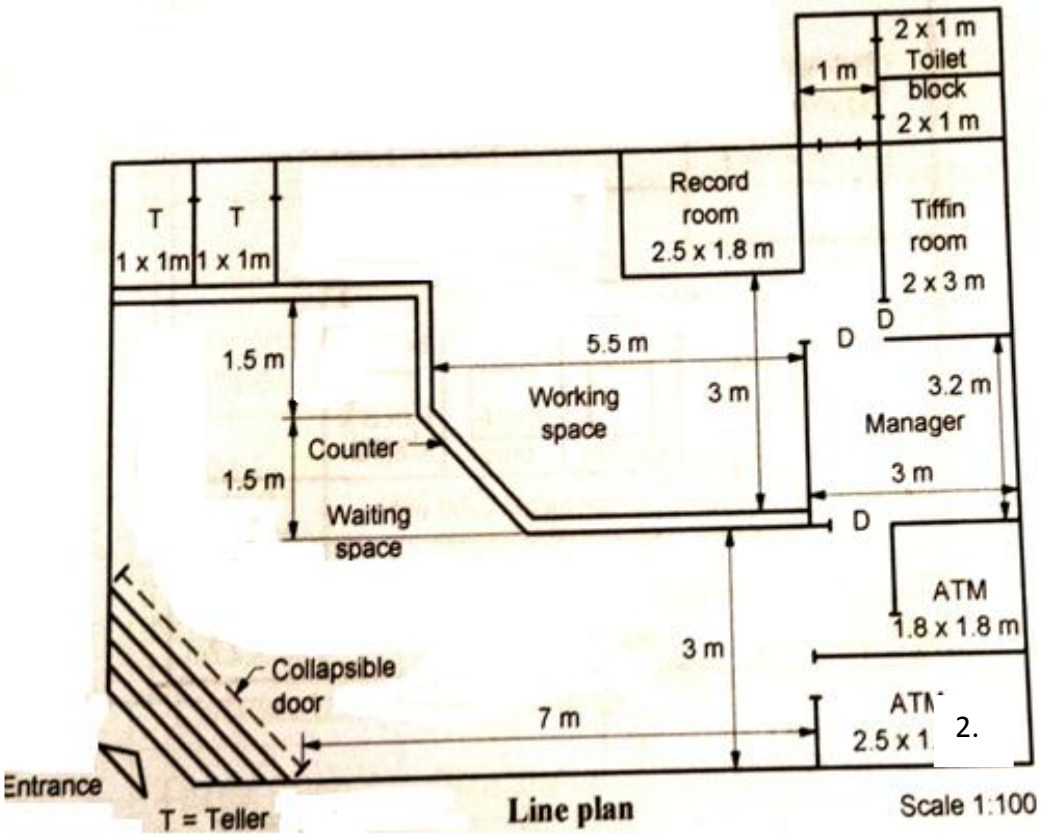
1) Kitchen: - 5.5 Sq.m. (Minimum Width: 1.8 m.)

2)Garage:-3m x 4 m , 3.3m x 4.2 m. , 4m x 4.5m

3)Bathroom with attached W.C.:- 2.8 Sq.m. (Width 1.2 m)

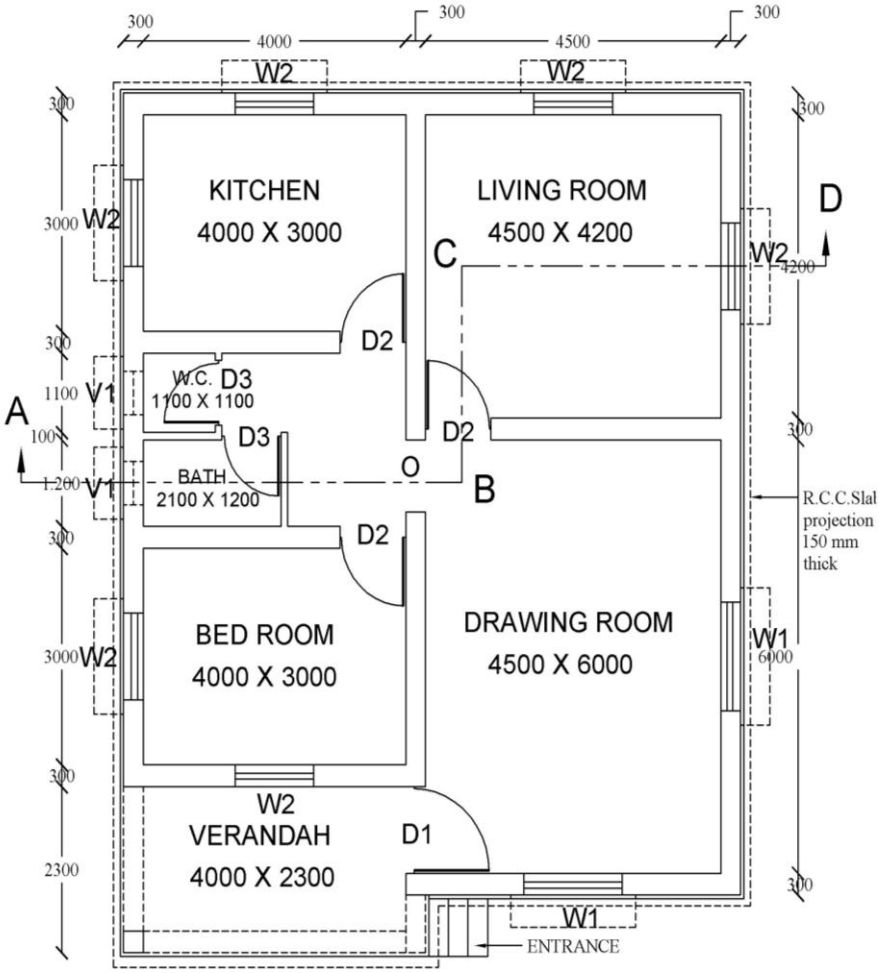
4)Bed Room:- 9.5 Sq.m. (Width 2.4 m)

01 Mark for each

Q.1	b)	Draw a line plan to a suitable scale for single bank building. Built up area is limited to 200 m^2 	08 **Correct line plan 03 – marks** **lebbeling-02 marks** **dimension 02–marks,** **neatness 01 - mark**
Q.2		Refer figure no.1 shows the line plan of a residential building. Draw to a scale of 1:50 the following views. Show all dimensions and label the parts. a) Developed plan b) Elevation c) Section along AD **Use the following construction notes** I) Depth of foundation =1200 mm below G.L. Ii) Plinth height above G.L.=600mm Iii)Height of bottom of slab from floor level =3200mm Iv)Slab thickness= 125mm V)Chajja projection =450mm Vi) Superstructure in B.B. masonary with all walls 300mm thick and internal wall of bath and WC 100 mm thick	

Ans

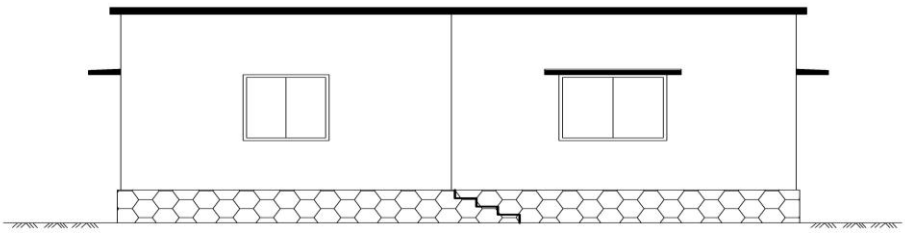
a) **Developed plan**



PLAN (SCALE 1:50)

NOTE : ALL DIMENSIONS ARE IN MM.

b) Elevation



ELEVATION (SCALE 1:50)

NOTE : ALL DIMENSIONS ARE IN MM.

developed plan 04 marks

lebbeling-02marks,

dimensions 02 marks,

doors and windows 02 marks

neatness 01 mark

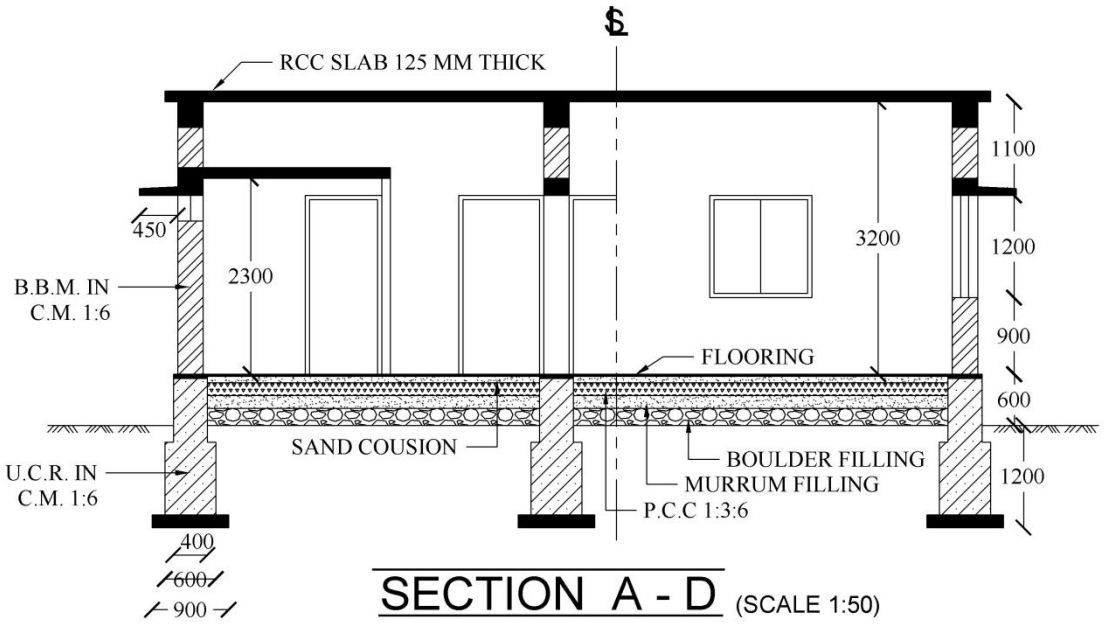
Scale 01 mark

Correct elevation 04 marks,

Neatness 01 marks)

Scale 01 mark

c) Section along AD



SECTION A - D (SCALE 1:50)

NOTE : ALL DIMENSIONS ARE IN MM.

Correct section 05 marks

all dimension 02 marks,

material symbol 02marks

Scale 01 mark

Q.3 a) Attempt any three of the following

Prepare schedule of opening and area statement for question No. 2

SCHEDULE OF OPENINGS

Sr. No.	Item	Symbol	No.	Size (mm)	Description
1	Door	D1	01	1200x2100	Flush door with T.W. frame Single
2	Door	D2	03	1000x2100	Fully paneled door in T.W. frame, single shutter type
3	Door	D3	02	900x2100	Fully paneled door in T.W. frame, single shutter type
4	Opening	O	01	1000x2100	
5	Window	W1	02	1500x1200	Fully glazed window, sliding type

05

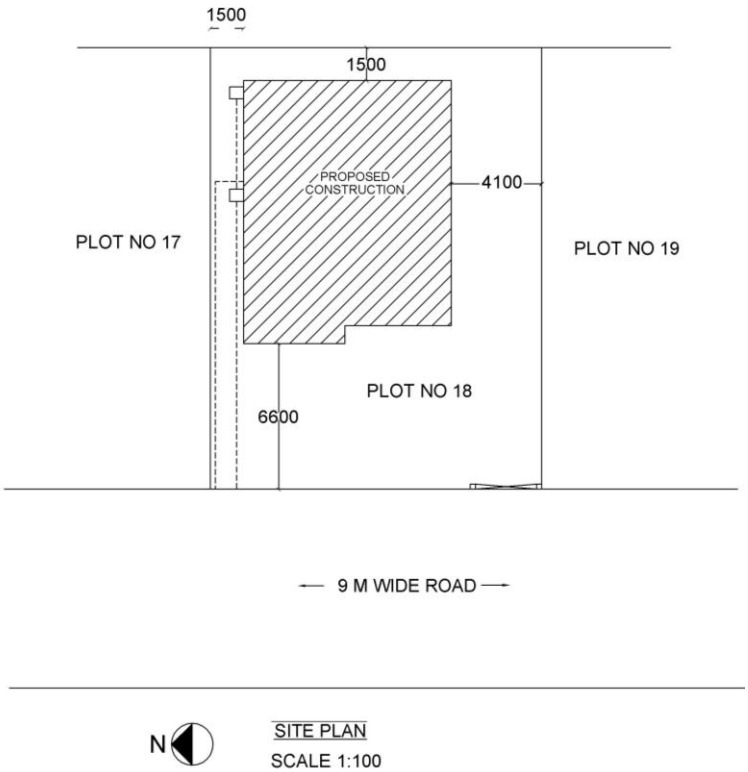
			6	Window	W2	05	1200x1200	Fully glazed window, sliding type	
			7	Window	W3	01	1000x900	Fully glazed window, single panel	
			8	Ventilator	V	02	600x300	M.S. Grilled ventilator	

SCHEDULE OF AREA STATEMENT

Sr.	Item	Area in Sq.m.
01	Plot Area	300 Sq.m.
02	Built Up Area	108 Sq.m.
03	Carpet Area	57.90 Sq.m.

03

Q.3 b) Draw to a suitable scale site plan for the building mentioned in question No. 2. (Figure no. 1). The plot size is 15mx20m. The road is parallel to 15m side of the plot.

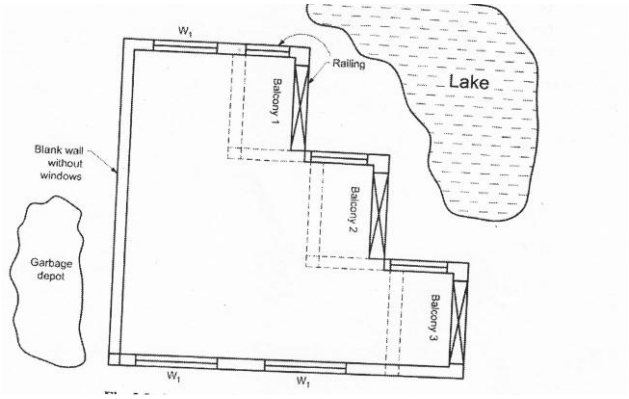


Correct site plan 04 marks ,

site margins 02 marks,

Water and sewer line 01 mark,

neatness 01 mark

Q.3	c)	Explain any four principles of planning 1)Circulation: It means the provision for the access between various parts of the building. It is the consideration for the easy movement of the person from one place to another. It is of two types – **i) Horizontal circulation ii) Vertical circulation** i) Horizontal Circulation : It is the movement between rooms on the same floor i.e. movement in Passages, corridors, Halls and lobbies are provided for the horizontal circulation. ii) Vertical circulation-It is the movement from one floor to another floor in vertical direction. For vertical circulation stairs ,lifts ramps, escalators are provided. Stairs should be sufficiently wide and well ventilated. 2)Aspect – The arrangement of rooms according to the functional utility in such a way that the user should enjoy maximum sunlight and air. It is an important consideration of planning from comfort and health point of view. Positioning of openings A room which receives sunlight and breeze from a particular direction is said to have aspect of that direction. Aspect of different rooms w.r.t. sun movement diagram E.g. Kitchen-East or North- East Bedroom- South west or North- west Drawing room: South-East or North-East 3)Prospect - It is the view desired from a particular room when seen outside the window. Depends on surrounding revilement of some natural beautiful pleasant scenery. Concealing the unwanted views. Placement of doors and windows in external walls affects prospect.  4)Orientation:-It is the method of proper placement of planned units of the building in relation to natural elements like sun, rain, wind, outlook, topography etc. the position of building is decided with respect to “North”, to place the different units or room to achieve natural ventilation ,air circulation and lighting ,or Orientation is necessary to achieve maximum advantage from natural elements. 5)Grouping:-It is the arrangement of various room with respect to their function .Grouping various according type of building ,residential or public (hospital ,library ,bank, school etc).proper grouping helps in deterring shape of building should be placed in sequential	Any four 02 marks each

6) Elegance: - It is a term related to the effect produced by elevation. Elevation can be imagined while preparing plan to produced elegance. Elegance Depends upon planning as well as elevation, without elevation a properly planned building may not look beautiful.

7) Flexibility:- In case of public building the plan provide flexibility from future expansion point of view .a room plan as staff room may later be used as activity room as store after the expansion of building.

8) Roominess:- The principal of planning is directly related with dimension of the room .It is must select dimension i.e. length ,width and height after area of room is finalized. Light colors give effect of more space whereas dark colors make the room's look smaller.

9) Circulation:- Circulation movement of the user inside the units of building, from one unit to another at the same floor or even movement from one floor to the another.

10) Furniture requirements: - Requirements Furniture in the room can be deciding the size of unit. e.g A living room can be planned to accommodate a sofa set, Teapot, Diwan, T.V. cabinet, shoe rack etc.

11) Economy It is a factor which restrict the freedom of planning of building by an architect. A proper scope of future expansion should be considered.

Q.3 d) i) Write dimensions of rise and tread for residential and public building

Rise and tread in Residential Building:	
Rise :	175-185 mm
Tread :	250-270 mm
Rise and tread in Public Building:	
Rise :	150-170 mm
Tread :	270-300 mm

02

02

ii) Define Station point and vanishing point in perspective drawing

Station point: It is the point where the observer is considered to be standing at the time of viewing the object. Depending on the position of observer the image or view of the object will change.

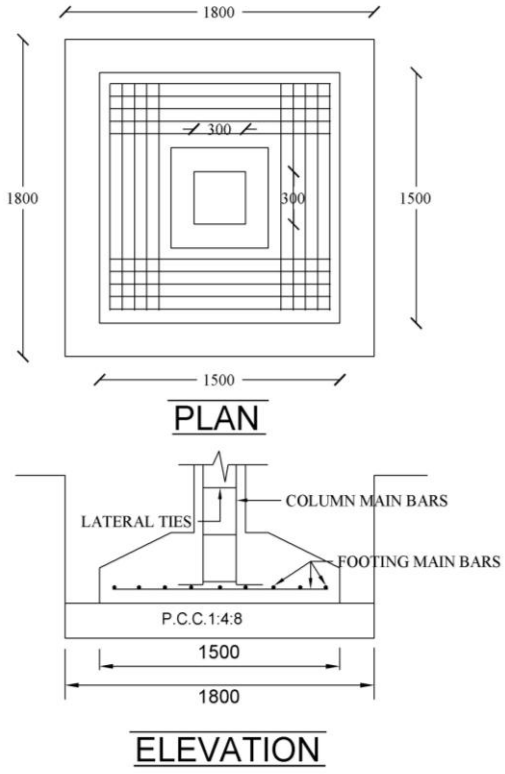
02

Vanishing points: These are the points where vertically downward projectors from left and right vertical traces (i.e. From VTL and VTR) intersection the eye level.

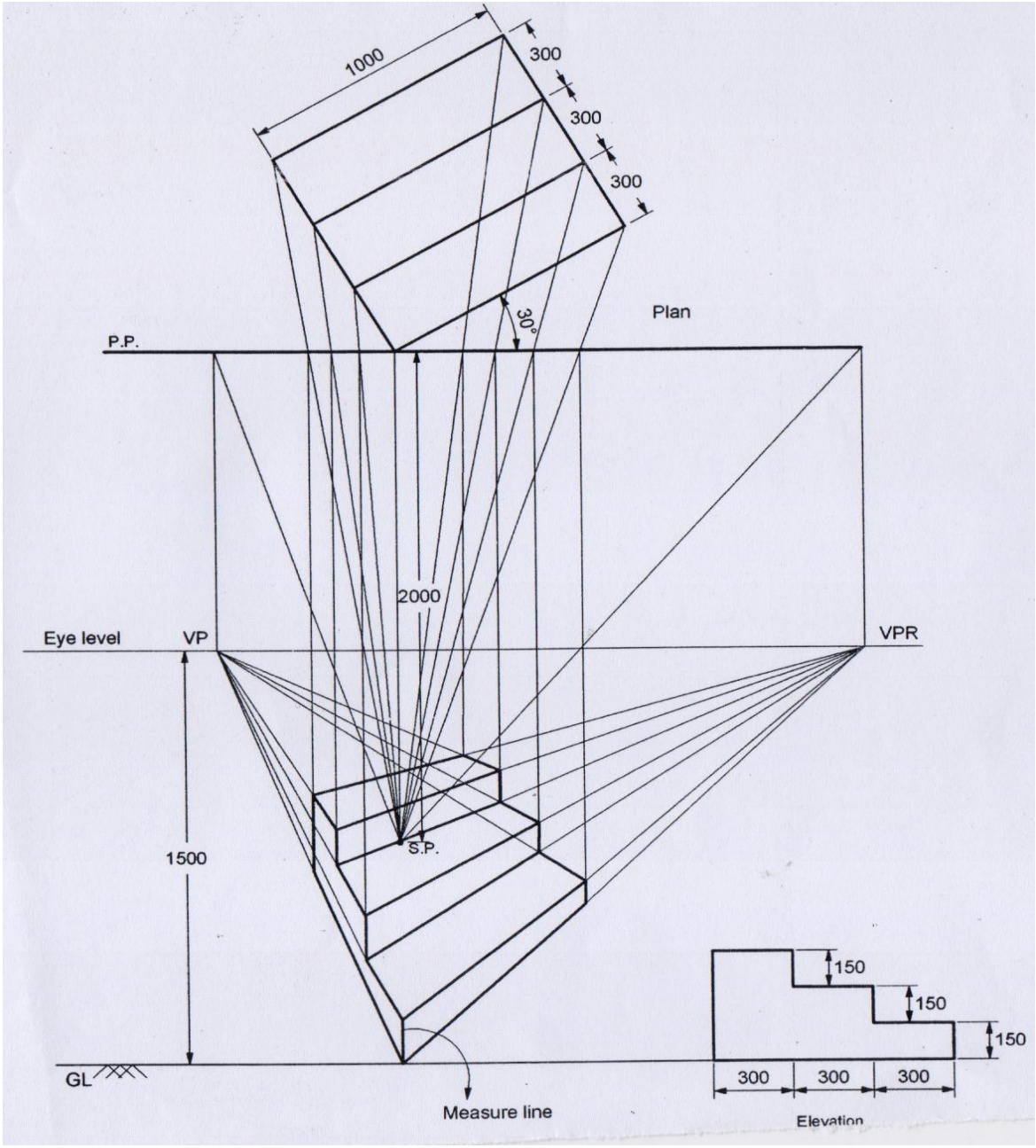
These are the points in which a system of parallel line of the object inclined to picture plane appears to converge. These points are obtained by intersecting PP by the line drawn from the station point parallel to given set of parallel lines of object.

02

Q.4	a)	Attempt any **TWO** of the following **Define orientation of building** **'It is very difficult to get proper orientation for all flats in a Apartment" comment on this statement.**	
	Ans	Definition: Orientation means the placement of rooms with reference to north direction. e.g. kitchen lies towards east and North-East, bedrooms are towards south to south-west, and bedrooms are towards south to southwest and maximum hall windows should face north-northwest. "It is very difficult to get proper orientation for all flats in a Apartment", because an apartment is such a building in which there may be more than one flat at each floor and the entrance of these flats are from a common central place. In such a case all the flats may not get a particular facing of direction as per the principle of planning as an Aspect for that unit or room. Similarly benefits of aesthetics or beauty of outside view may not be achieved from all the flats. Bed rooms of all flats may not benefited with breeze from a particular direction. Hence it is very difficult to get proper orientation for all flats in an Apartment.	04 04
Q.4	b)	Define following i) Plot area ii) Built up area iii) Super built up area iv) Plinth area **Plot Area :** It is a piece of land which is well marked and enclosed by definite boundaries. The area of this piece of land is called plot area. Plot can be of any shape or size. Plots are sold either by competent authority or development authority or by owner of land. After purchasing, it should be well marked and fenced for further encroachment by any other antisocial elements. **Built Up Area :** It is the built up covered area of a building measured at floor level or at any story. Built up area will be calculated by taking external dimensions of the building at the floor level excluding plinth offsets if any. The area of courtyard, open areas, balconies not greater than 0.9m projections and cantilever projections are included. **Super Built Up Area:** It is the sum of built up area and certain percentage (differs from city to city as per local development authority) of floor area of staircase, parking and open balconies. **Plinth Area:** The portion of structure between the surface of surrounding ground and surface of floor (i.e. portion between ground level o floor level) immediately above the ground is called plinth.	02 02 02

		The height from ground level to plinth level is called plinth height. The built-up covered area measured at the floor level or plinth level either at basement or at any floor is called plinth area at that floor. The area of a building including area of all the units with wall thickness a plinth level is called plinth area. In other words, the area under the external periphery of a building at plinth level is called plinth area. It includes plinth projections also (if provided)	02
Q.4	c)	Draw detailed plan and section of RCC column and column footing with following data. i) Size of footing – 1500x1500 mm ii) Size of column – 300 x300 mm  	for neat and suitable plan -03 marks for suitable Section -03 marks dimensioning and labeling- 02 marks

Q.5		Draw the two point perspective view of small object shown in Figure No. 2. Retain all construction lines. Take eye level at 1.50 m above G.L. All dimensions are in mm Assume any data if required.	



02 marks for plan,

01 mark for elevation,

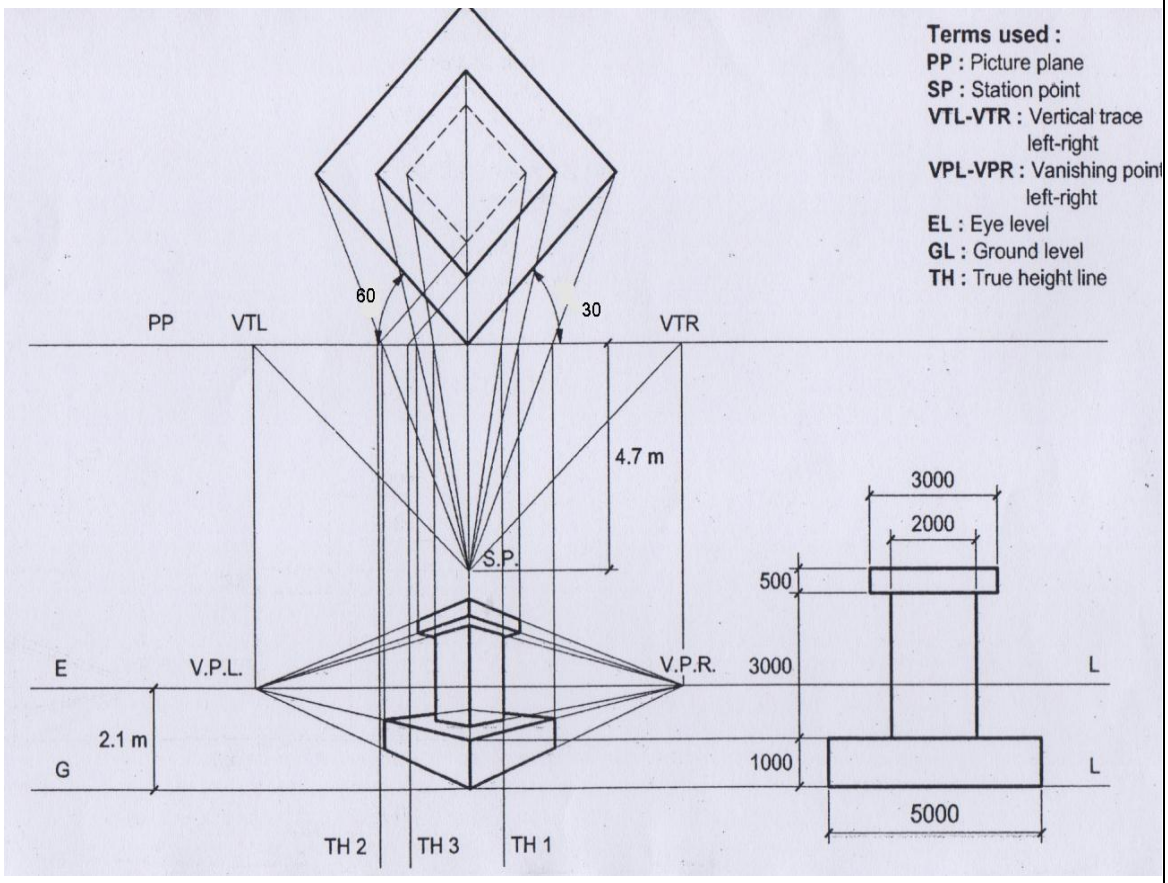
02 marks for construction lines,

01 mark for eye level

01 mark station point

05 marks for correct object

OR



02 marks for plan,

01 mark for elevation,

02 marks for construction lines,

01 mark for eye level

01 mark station point

05 marks for correct object