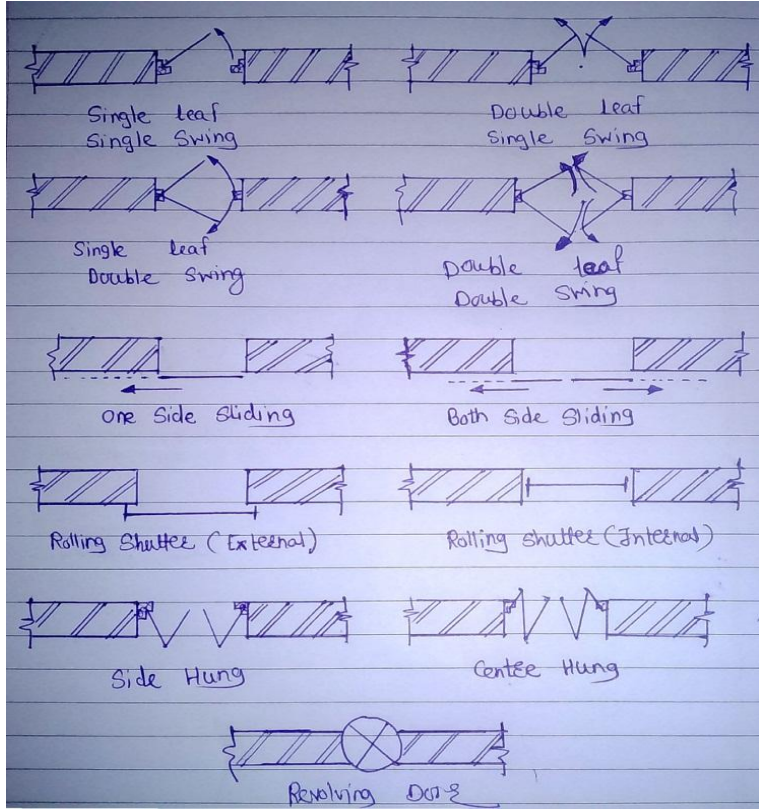


**Important Instruction to Examiners:-**

- 1) The answers should be examined by key words & not as word to word as given in the model answers scheme.
- 2) The model answers & answers written by the candidate may vary but the examiner may try to access the understanding level of the candidate.
- 3) The language errors such as grammatical, spelling errors should not be given more importance.
- 4) While assessing figures, examiners, may give credit for principle components indicated in the figure. The figures drawn by candidate & model answer may vary. The examiner may give credit for any equivalent figure drawn.
- 5) Credit may be given step wise for numerical problems. In some cases, the assumed contact 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 judgment on part of examiner of relevant answer based on candidates understanding.
- 7) For programming language papers, credit may be given to any other programme based on equivalent concept.

**Important notes to examiner**

1. **In Question 1(B)** Student may draw any appropriate plan related to post office building or hostel building so accordingly gives credit to them.
2. **In Question No.-2** Student may draw Plan, elevation and section by using other suitable scale than 1:50 so accordingly gives credit to them.
3. **In Question 6(a)** Student may draw any appropriate plan related to Primary Health center so accordingly gives credit to them.
4. **In Question 6(b)** Student may draw any appropriate plan related to Bank building so accordingly gives credit to them.
5. **In Question 6(c)** Student may draw any appropriate Line plan related to residential building so accordingly gives credit to them.

Q .NO	SOLUTION	MARKS
Q1. (A)	<b>Attempt Any THREE of the following:</b>	
a)	<b>Draw graphical symbols for any four types of doors.</b>	<b>04 M</b>
	 <p>The image shows a collection of hand-drawn architectural symbols for different door types. Each symbol is a cross-section of a door within a frame, with arrows indicating the direction of movement. The symbols are labeled as follows:</p> <ul style="list-style-type: none"> <li>Single leaf Single Swing</li> <li>Double leaf Single Swing</li> <li>Single leaf Double Swing</li> <li>Double leaf Double Swing</li> <li>one side sliding</li> <li>Both side sliding</li> <li>Rolling Shutter (External)</li> <li>Rolling shutter (Internal)</li> <li>Side Hung</li> <li>Centre Hung</li> <li>Revolving Door</li> </ul>	<b>1M for each</b> <b>Give any FOUR</b>
b)	<b>Differentiate between internal and external privacy with one example of each.</b>	<b>04 M</b>
	<p><b>Internal Privacy :</b></p> <ol style="list-style-type: none"> <li>In internal Privacy, the direct view inside any room from any other room or passage, lobby is prevented.</li> <li>Internal privacy plays an important role in circulation of inside the building.</li> </ol> <p><b>Examples:</b></p> <ol style="list-style-type: none"> <li>All doors should not be placed in one line, placing of single shutter doors offer more privacy than double shutter doors.</li> <li>By proper furniture arrangement.</li> <li>Use of screens at the doors of W.C. and Bath etc.</li> <li>Use of partitions.</li> </ol> <p><b>External Privacy :</b></p> <ol style="list-style-type: none"> <li>In External Privacy, the direct view of the building from surrounding buildings is obstructed.</li> <li>Also privacy from noise and pollution from the road.</li> </ol> <p><b>Examples:</b></p> <ol style="list-style-type: none"> <li>Sufficiently kept sill height will not disturb external privacy.</li> <li>Verandah is to be planned in the front side to maintain external privacy.</li> <li>Further raising sill height of W.C. and bathroom also maintains the external privacy.</li> <li>Built a compound wall on plot boundary.</li> <li>Plant the trees near building.</li> </ol>	<b>1M for each</b> <b>Give any one difference and one example each</b>

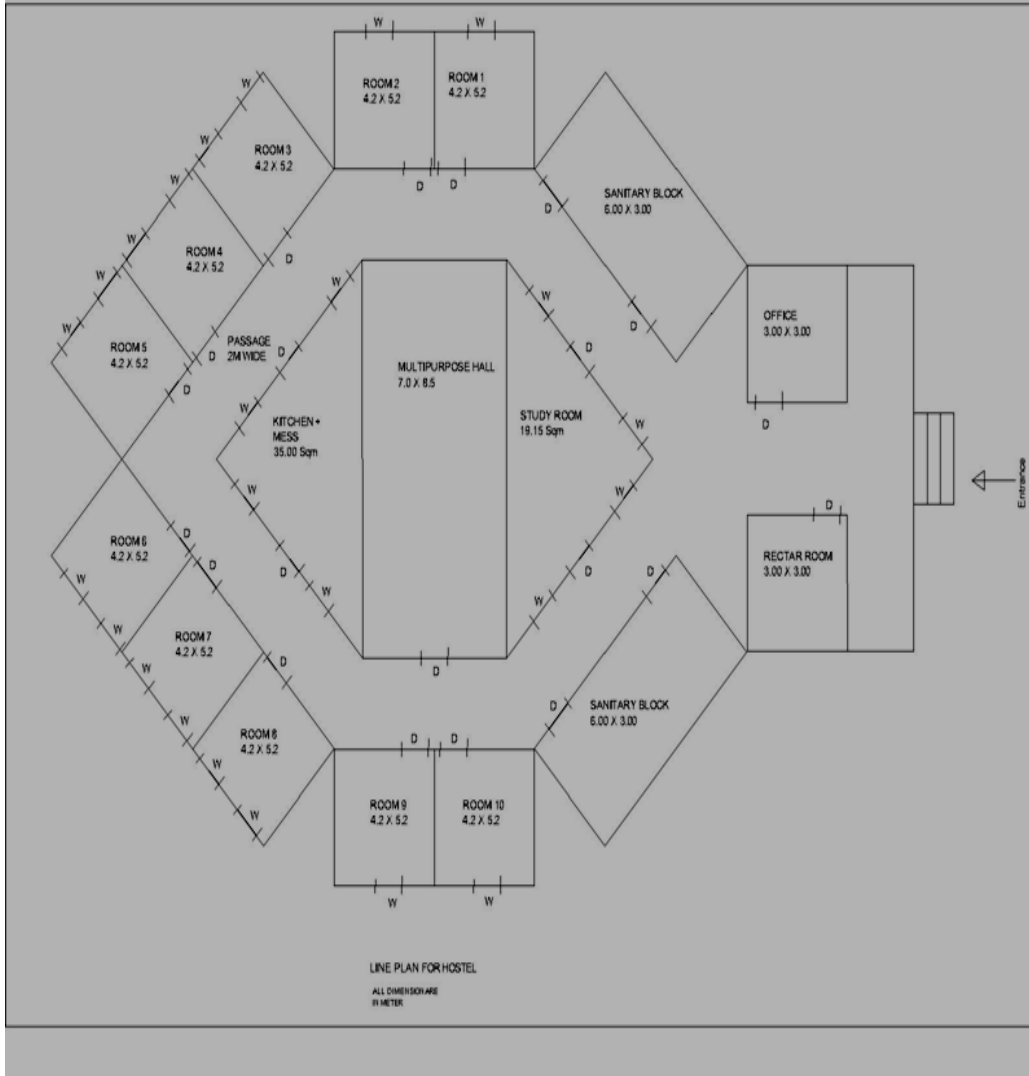
<p>c)</p>	<p><b>State any four importance of submission drawing.</b></p> <p>i) For the purpose of obtaining sanction from competent authority.                  ii) To know the orientation of the building.                  iii) It gives details of about all floor plans including terrace and car park plan.                  iv) It shows the architectural elevation of the building.                  v) It gives clear internal details from foundation to terrace of the building in section.                  vi) Gives details of the doors and windows sizes and types in schedule of opening.                  vii) Schedule giving notes for type of construction.                  viii) Schedule giving notes for foundation work.                  ix) It gives idea about total height of building.</p>	<p><b>04 M</b>  <b>1 M Each</b> <b>Give any FOUR</b></p>
<p>d)</p>	<p><b>Define picture plane and vanishing points in perspective view.</b></p> <p>1) <b>Picture Plane:</b> It is an imaginary, transparent vertical plane erected between the object and the observer, very near to, or touching or cutting one corner of the object.</p> <p>2) <b>Vanishing points:</b> The vanishing points on a line are the points where the perspective of all straight lines except those parallel to the picture plane appears to terminate.</p> <p style="text-align: center;">OR</p> <p>2) <b>Vanishing points:</b> The vanishing points on a line are the points in which a system of parallel line of the object inclined to picture plane appear to converge.</p>	<p><b>04 M</b>  <b>02 M</b>  <b>02 M</b></p>
<p><b>Q1. (B)</b></p>	<p><b>Draw to suitable scale a line plan of Post office building stating the units and dimensions of each.</b></p>	<p><b>08 M</b></p>
<div style="text-align: center;"> </div> <p><i>* Note (Line plan 4 marks, Units 2 Marks, Dimensions 2 Marks, Doors and Windows are optional here.)</i></p> <p><b><u>Note-: students may draw any other plan related to Post office building So accordingly give credit to them.</u></b></p>		

OR

Q 1(B)

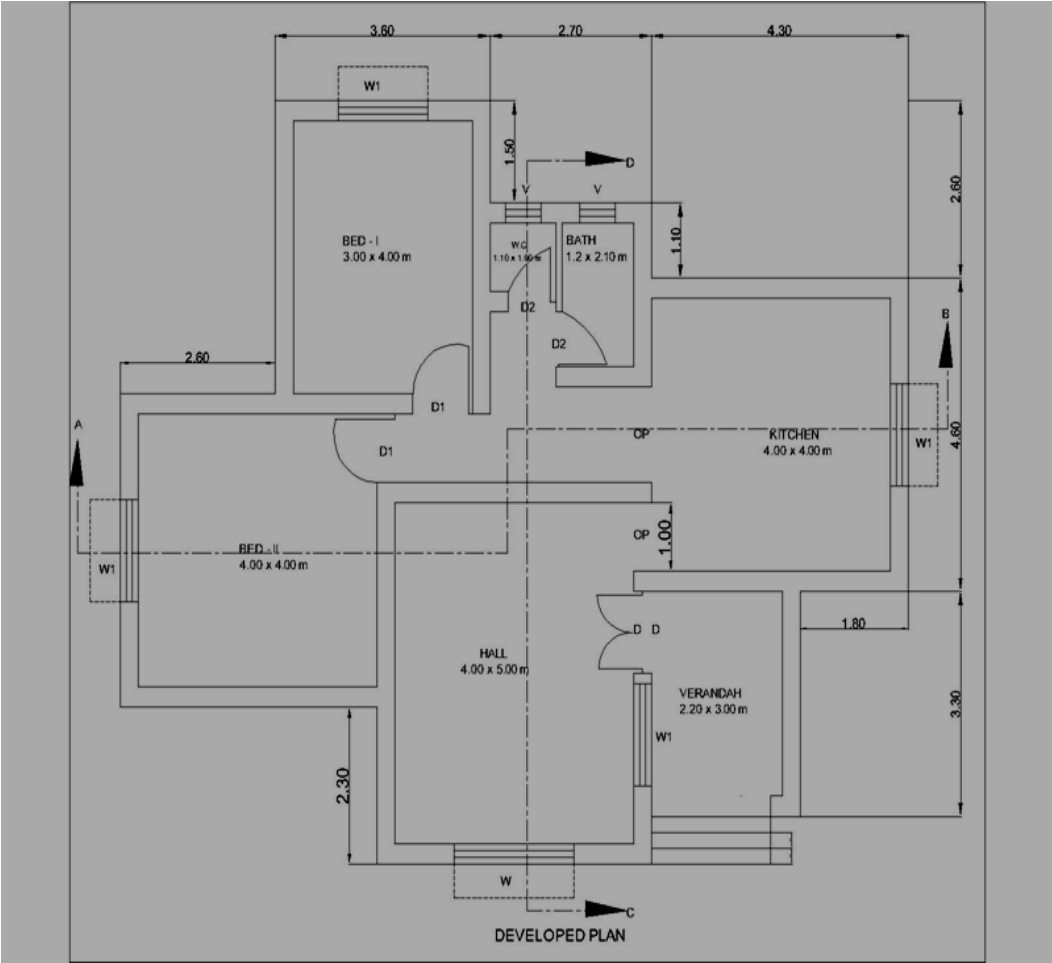
Draw to a suitable scale a line plan of Hostel Building for 30 beds stating units and dimensions of each.

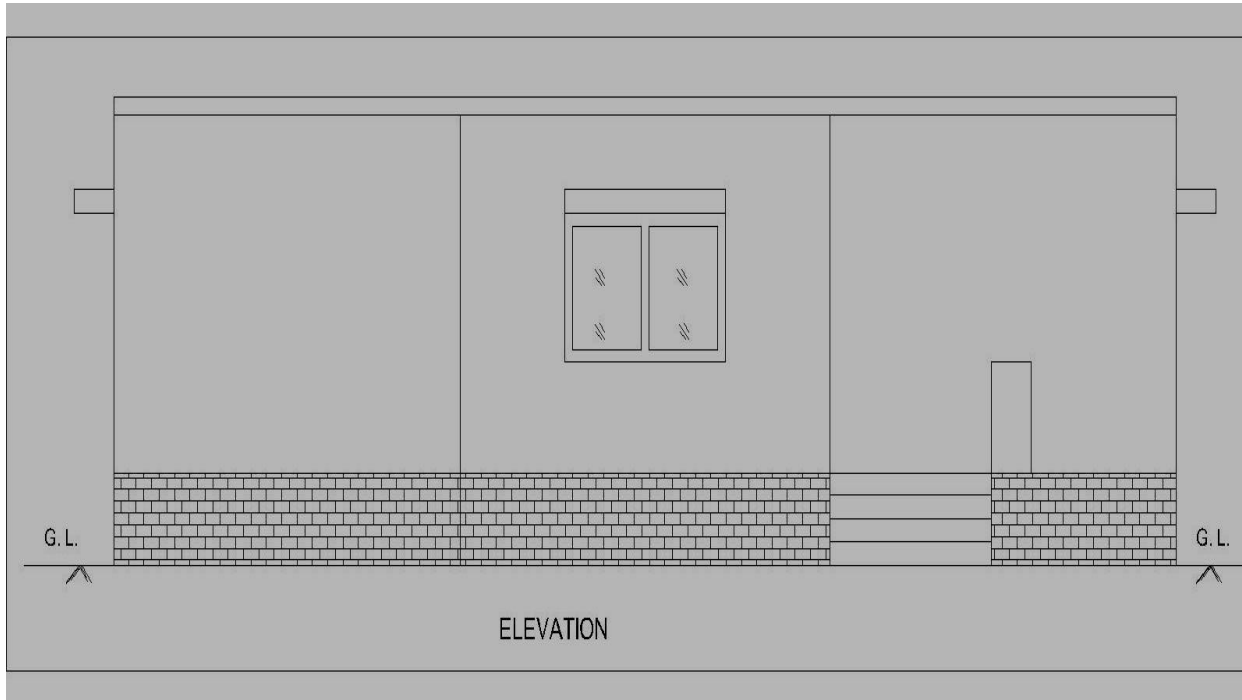
08 M



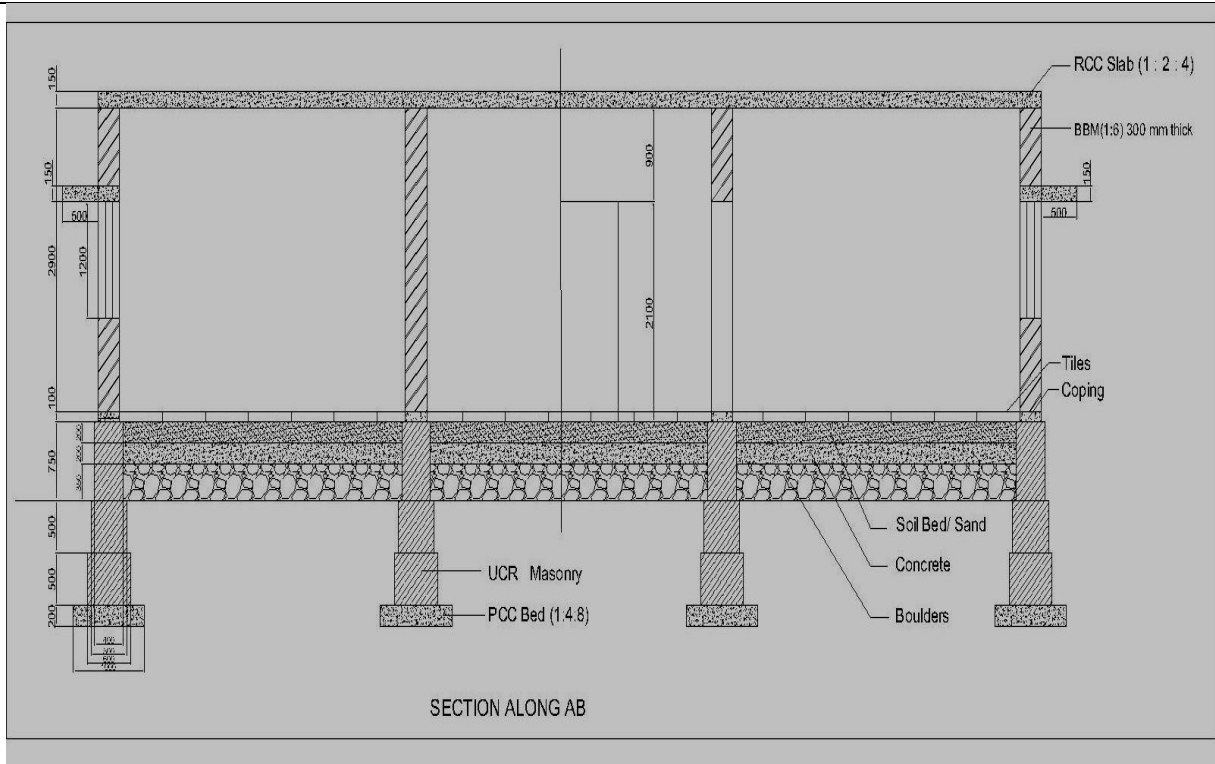
*\* Note (Line plan 4 marks, Units 2 Marks, Dimensions 2 Marks, Doors and Windows are optional here.)*

**Note-: students may draw any other plan related to Hostel Building So accordingly give credit to them.**

Q2.	Attempt any four of the following.	30 M
	<p><b>Fig. No. 1. Show a line plan of residential building. Draw to the scale of 1:50 the following views. Show all dimensions and label the parts.</b></p> <p>a) Developed plan                      b) Elevation                      c) Section AB or section CD.</p> <p>Use the following construction note.</p> <p>i) Depth of foundation - 1200 mm below GL.                      ii) Plinth height above GL is 750 mm.                      iii) Height of bottom of slab 2900 mm above floor                      iv) Slab Thickness of is 150mm.                      v) Chajja projection 500 mm.                      vi) Super structure in BB masonry 300 mm thick and internal walls of bath and WC is 100 mm. thick.</p> <p>Assume suitable data if required.</p>  <p style="text-align: right;"><b>Scale : 1:50</b></p> <p><i>*Note: Wall thickness - 02 marks, Labeling- 02 marks, Dimension- 02 marks, Position of Window – 02 marks &amp; Door – 02 marks, Neatness – 02 Marks</i></p>	

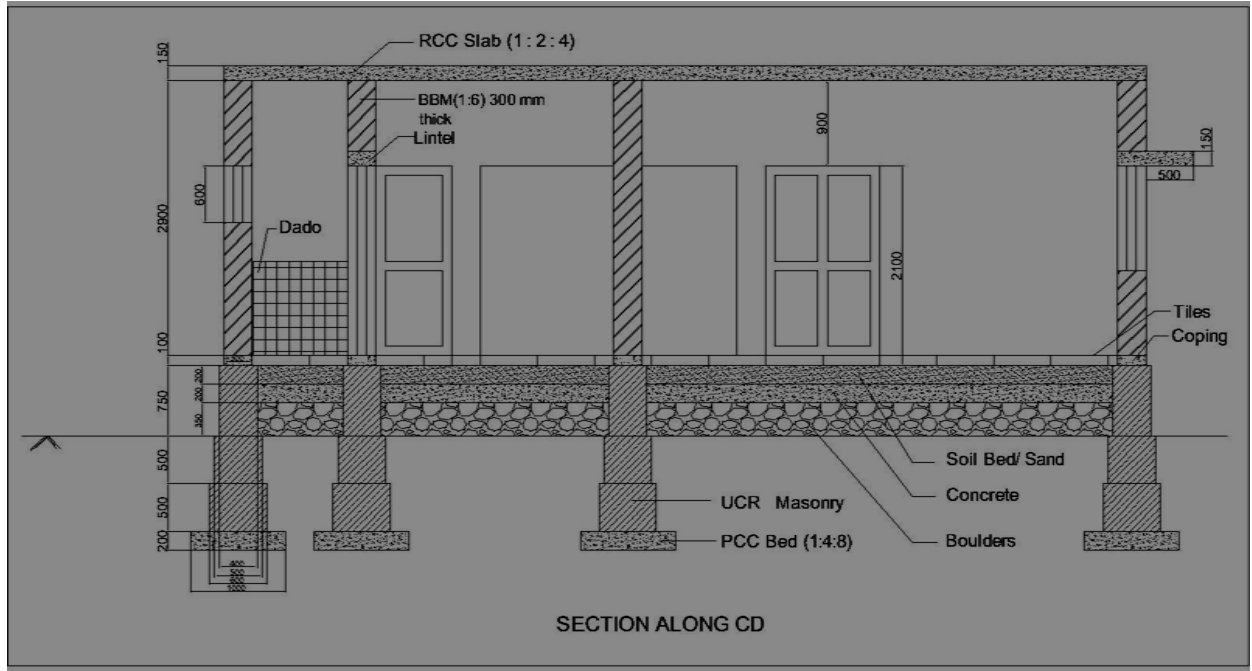


*\*Note: Projected Line work- 02 marks, Correct Elevation- 04 marks, Neatness – 02 Marks*





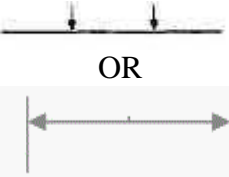
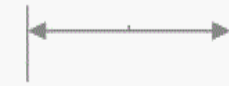


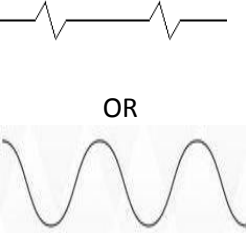
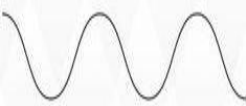


*\*Note: Correct Section - 04 marks, All Dimensions - 02 marks, Material Symbols – 02 Marks, Neatness – 02 Marks.*

OR



*\*Note: Correct Section - 04 marks, All Dimensions - 02 marks, Material Symbols – 02 Marks, Neatness – 02 Marks.*

Q .NO	SOLUTION			MARKS	
Q.3	<b>Attempt Any Three of the following:</b>			<b>12 M</b>	
a)	<b>Draw and give necessity of any four lines as per IS 962-1989.</b>			<b>04 M</b>	
	<b>Sr.No.</b>	<b>Type of Line</b>	<b>Symbol</b>	<b>Necessity</b>	<b>1 M for Each Draw any four lines</b>
	1	Visible Outline		These lines should be outstanding in appearance. These lines are used to show wall thickness, plot boundary, proposed structure etc. Thickness may be 0.6mm to 1.3mm.	
	2	Center Line	Thickness 0.2mm to 0.3mm. 	These lines are used to show centre. e.g. Center line of column, centre line of wall or window etc. Alternate long and short dashes are used in proportion of 6:1 or 4:1.	
	3	Section Line	Thickness 0.6mm to 1.0mm 	It is cutting plane on which a section has been taken. It should be indicated by a thick long dash and two short dashes alternately and evenly spaced and lettered at ends.	
	4	Dimension Line		These lines are used to show dimensions of structure. Thin full line is used in contrast with heavier visible outlines to show dimension. Thickness 0.2mm to 0.3mm.	
	5	Extension Line	 OR 	Light and thin lines are drawn from the extremities of feature to which dimensions has to be given. It should not touch the feature.	
	6	Hidden Line	Thickness 0.4mm to 0.5mm 	These lines are used to show interior or hidden portions e.g. slab projection, chajja projection, loft, truss etc. It consists of small dashes evenly spaced.	
	7	Pointer Line		When space is insufficient to write a note or dimension near the feature, pointer lines are drawn from the note or dimension to show where it applies.	
	8	Break Line	 OR 	Short break lines are free hand drawn. To show continuity of the object, long break line or short break line is used.	



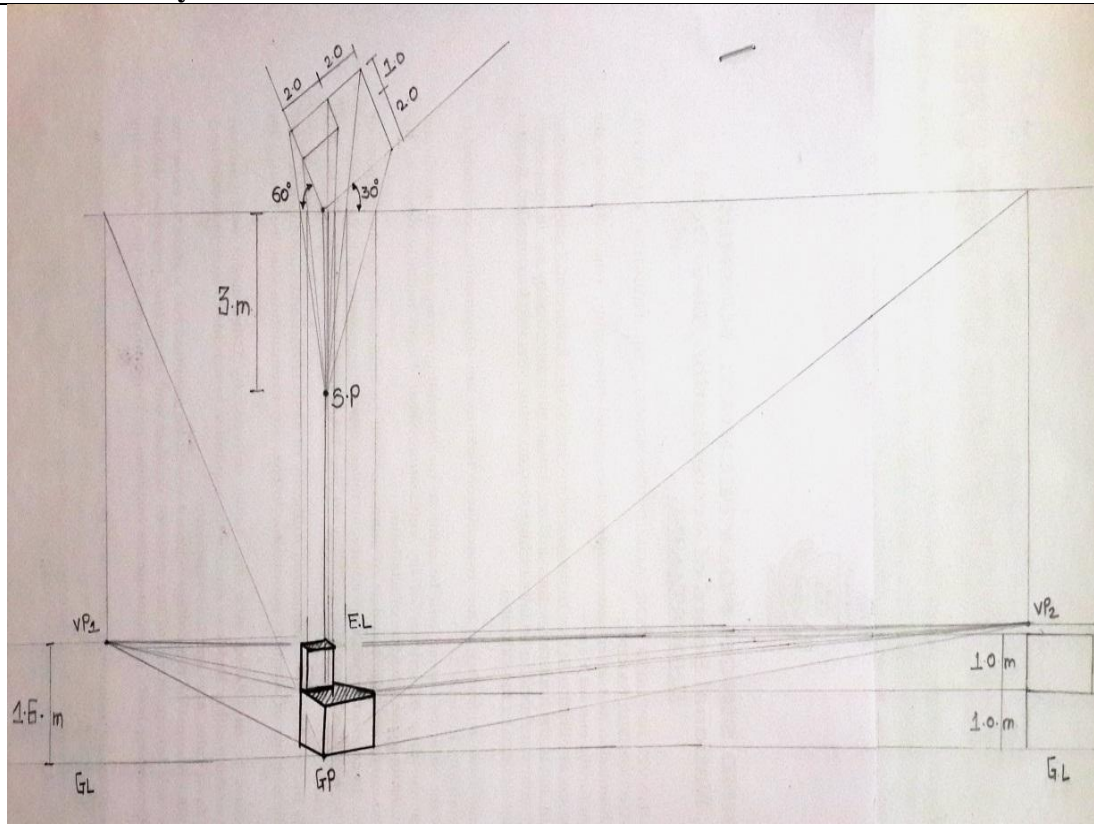
<b>b)</b>	<p><b>State minimum dimensions required for following :</b></p> <p><b>(i) Habitable room</b>  <b>(ii) Bathroom</b>  <b>(iii) Kitchen</b>  <b>(iv) WC</b></p>	<b>04 M</b>
	<p>(i) Habitable Room:- Minimum area 9.5m<sup>2</sup> (minimum width 2.4m)                  (ii) Bathroom:- 1.5mx1.2m (minimum area 1.8m<sup>2</sup>)                  (iii) Kitchen:- Without store minimum area 4.5m<sup>2</sup> (minimum width 1.8m)                  Kitchen:- With store minimum area 5.5m<sup>2</sup>(minimum width 1.8m)                  Kitchen:- With dining minimum area 9.5m<sup>2</sup>(minimum width 2.4m)                  (iv) WC:- 1.2mx0.9m (minimum area 1.1m<sup>2</sup>)</p>	<b>1M for each</b>
<b>c)</b>	<p><b>State importance of foundation plan in building construction.</b></p>	<b>04 M</b>
	<ul style="list-style-type: none"> <li>• Foundation plan shows the top view or layout of footings or foundation walls required to support the structure, showing their area and location by distance between center lines and by distance from reference lines or boundary lines.</li> <li>• Foundation plan is very important in building construction as it shows excavation to be carried out for laying foundation of building.</li> <li>• According to foundation plan, line out is given on the site by marking lines with white lime and according to that pits are dug.</li> <li>• Diagonal measurements are given on foundation plan for checking accuracy on site.</li> <li>• Foundation plan for load bearing structure and framed structure are different.</li> </ul>	<b>04 M</b>
<b>d)</b>	<p><b>Define perspective view and state different types of perspective view.</b></p>	<b>04 M</b>
	<p><b>Definition:</b> -Perspective is a Latin word meaning ‘look through’. It is a three dimensional view as a person sees or a camera captures a picture. It is representation of an object as it appears to the observer. It is illusion which is different from actual form of object. It is useful to architects, engineers, designers, public and artists. It is used for advertisement and printing brochures.</p> <p><b>Types of perspective view:</b>-a) parallel 1) one point perspective                  b) oblique or angular 2) two point perspective                  3) three point perspective</p>	<b>2 M for define and 2M for types</b>

<p><b>Q.4</b></p>	<p><b>Attempt any THREE of the following.</b></p>	<p><b>12 M</b></p>
<p><b>a)</b></p>	<p><b>State with sketch principles of perspective drawing.</b></p>	<p><b>04 M</b></p>
	<ul style="list-style-type: none"> <li>• Perspective drawing is figure formed on a picture plane when visual rays from eye to the object cut the picture plane.</li> <li>• Size and shape of perspective view depends on position of picture plane, eye level, station point and vanishing points.</li> <li>• When object is nearer to the observer or camera, it forms larger angle at eye or lens hence form larger images and if object is farther, it subtends smaller angle so forms smaller image.</li> <li>• In addition to length and breadth perspective view creates illusion of height/depth.</li> <li>• For human eye, parallel lines seen converged. E.g. railway track.</li> <li>•</li> </ul> <div style="display: flex; justify-content: space-around; align-items: center;"> <div data-bbox="228 659 820 1192"> <p>The diagram illustrates the basic elements of perspective drawing. On the left, a 'station point' is shown with a 'line of sight' extending horizontally to the right. A vertical 'picture plane' is positioned between the station point and the object. A horizontal 'ground line' is shown below the picture plane. A rectangular object is drawn on the ground line. Lines of sight from the station point converge at two 'vanishing points' on the ground line. The object's top and bottom edges are labeled 'aa' and 'bb' respectively. The vertical edges are labeled 'a' and 'b'.</p> </div> <div data-bbox="820 724 1349 1150"> <p>This diagram shows a perspective view of a pyramid. A horizontal line represents the 'Eye level (horizon)'. The top vertex of the pyramid is labeled as the 'Vanishing point'. The pyramid's edges converge towards this vanishing point. The pyramid is shaded to show its three-dimensional form.</p> </div> </div>	<p><b>01 M for Each Write any Two</b></p> <p style="text-align: right;"><b>2 M Sketch</b></p>
<p><b>b)</b></p>	<p><b>State any four importance's of working drawing.</b></p>	<p><b>04 M</b></p>
	<ul style="list-style-type: none"> <li>• Working drawings are detailed drawings and contains all instructions and data for actual execution of work on site.</li> <li>• It includes location sketch, foundation plan, detailed plans floor by floor, detailed sections.</li> <li>• It also includes structural drawings which contain reinforcement details of all columns, beams, slabs, chajjas, cantilever structures etc.</li> <li>• Bar bending schedule is also included.</li> <li>• Working drawing also gives information about material used, types of doors and windows, sanitary fittings along with required numbers.</li> <li>• Construction notes, separate foundation drawing, site plan, drainage and water supply arrangement, electrification layout is shown in working drawing.</li> <li>• Details of RCC components like chajja, lintel, and staircase are included in working drawing.</li> <li>• Each and every minute details of construction are available in working drawing for easy execution of work from start to end.</li> </ul>	<p><b>01 M each any Four</b></p>

c)	<b>Define FSI, floor area, built-up area and carpet area.</b>	<b>04 M</b>
	<ul style="list-style-type: none"> <li>• <b>F.S.I.:-</b> F.S.I. means floor space index. It is defined as the ratio of total built-up area (total area of all floors) to the area of the plot. It is also called as floor area ratio (F.A.R.) it regulates population density and overcrowding in dwelling units.</li> <li>• <b>Floor area:</b> - This is the usable covered area of the building at any floor level. Floor area is calculated by deducting area of walls from plinth area.</li> <li>• <b>Built up area:</b> - It is the area covered by all floors of the building. It covers everything under roof but excludes balconies, staircases etc. It includes floor area of all rooms plus wall thickness.</li> <li>• <b>Carpet area:</b> - This is the floor area of the usable rooms at any floor. (Actually where carpet can be laid.) Carpet area can be calculated from floor area deducting sanitary accommodation, kitchen, pantries, verandah, corridors, passages, stores etc.</li> </ul>	<b>01 M each</b>
d)	<b>State rule and bye-law for plinth height and ceiling height.</b>	<b>04 M</b>
	<p><b>Plinth height:</b> - Plinth height should be more than 300mm.  Generally it is taken from 450mm to 750mm.  For garages plinth height is 150mm.</p> <p><b>Ceiling height:-</b> 1) For habitable rooms 2.75m  2)For habitable rooms if air-conditioned 2.4m  3)For habitable rooms under row housing scheme 2.6m  4)Kitchen 2.75m  5)WC and Bath 2.2m  6)Basement 2.4m  7)Headroom in staircase 2.2m</p>	<b>02 M each</b>

Q.No.	Solution	Marks
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<b>Q.5</b>	<b>Attempt the following :</b>	<b>16 M</b>
<b>a)</b>	<b>Draw to suitable scale two point perspective view of monument shown in Fig.No. 2. Assume eye level at 1.6 m above GL and station point 3m from picture plane along central visual ray. Retain all construction lines.</b>	<b>10 M</b>

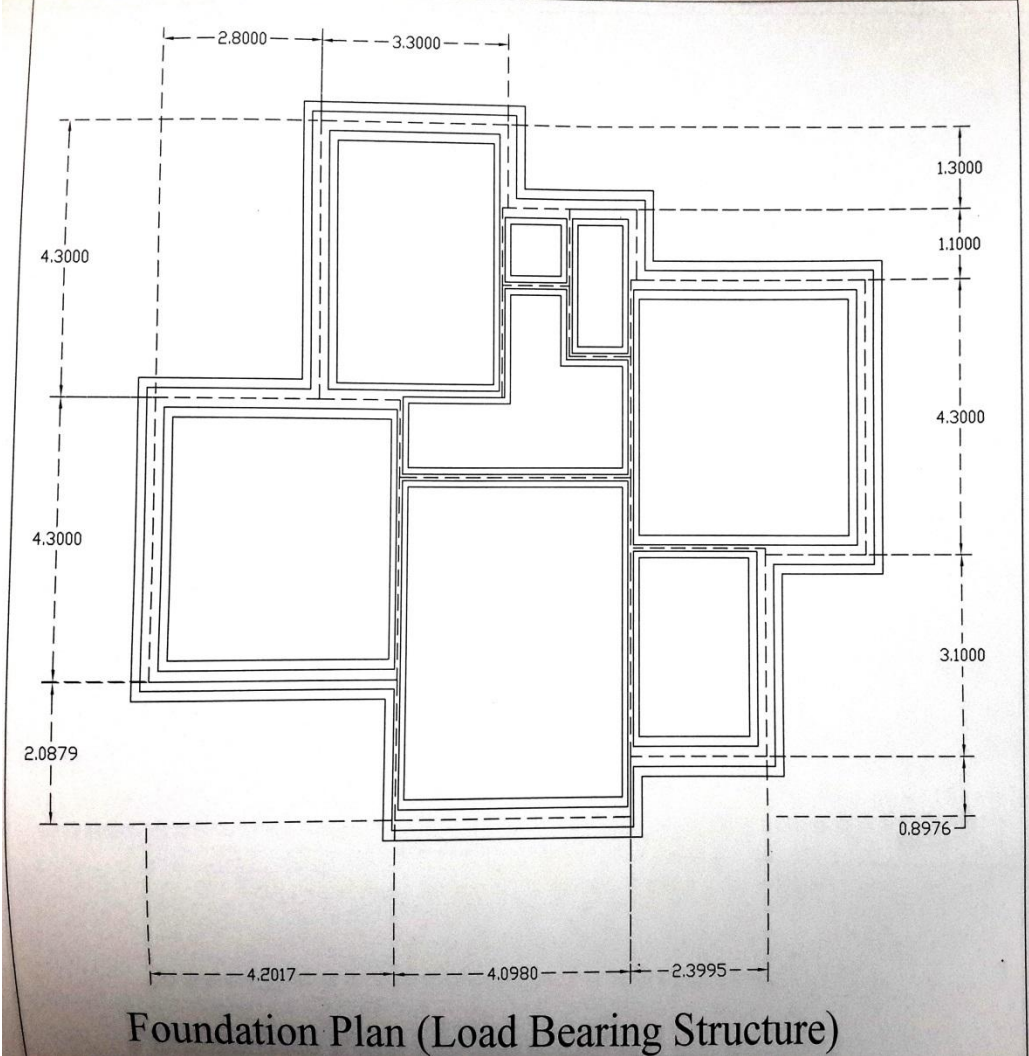


**1- Marks for Plan,1-Marks for elevation,1-Marks for construction line,1-Mark for eye level,6-Marks for correct object**

<b>b)</b>	<b>Prepare a schedule of opening for the building drawn in question No. 2.</b>	<b>6 M</b>
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S.N.	Symbol	Size	Nos.	Description
1	D	1.5 X 2.1 m	01	Panelled Door
2	D1	1.2 X 2.1 m	02	Panelled Door
3	D2	1 X 2.1 m	02	Panelled Door
4	W	2 X 1.5 m	06	Aluminium window
5	W1	1.5 X 1.5 m	02	Aluminium window
6	V	0.8 X 1.2 m	02	louvered window
7	O	1 X 1 m	02	

**Note:- Student can assume their own data Accordingly give credit to them**

Q.5	<b>OR</b>	
a)	<b>Draw foundation plan for question No. 2.</b>	<b>10 M</b>
	 <p style="text-align: center;"><b>Foundation Plan (Load Bearing Structure)</b></p>	<b>10 M</b>
b)	Prepare area statement for question No. 2. Assume plot area 250 m <sup>2</sup> .	<b>6 M</b>
	<p>a) <b>Plot area = 250 m<sup>2</sup></b>                  b) <b>Built up area = 97.45 m<sup>2</sup></b>                  c) <b>Carpet area = Built up area – Area of WC , Bath and passage = 87.23 m<sup>2</sup></b></p>	<b>3 M</b> <b>3 M</b>

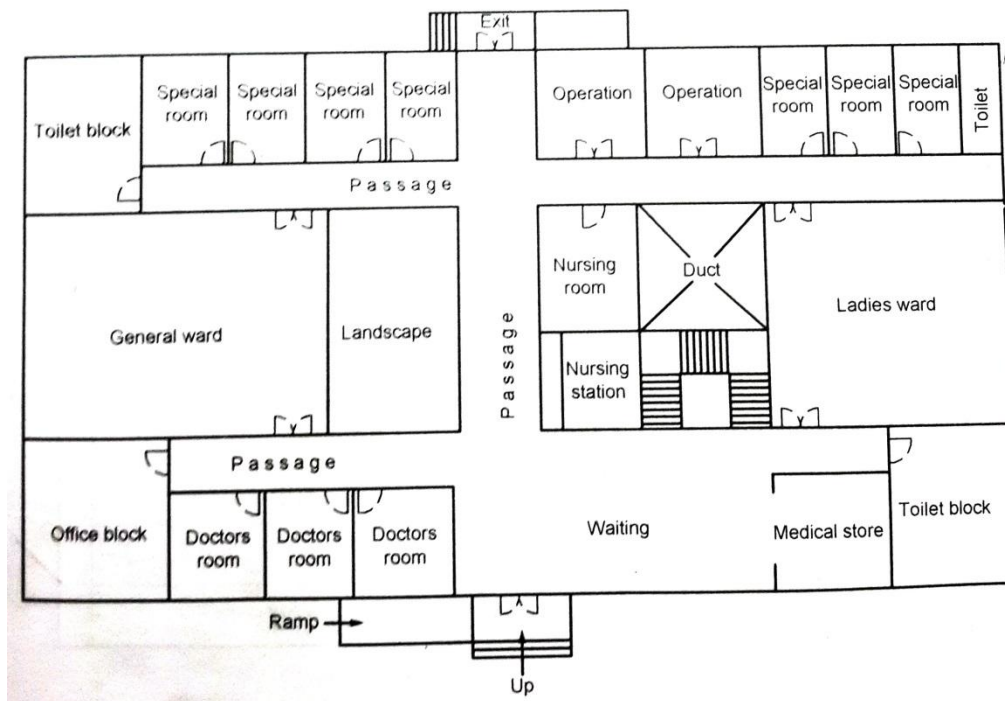
**Q.6 Attempt any two of the following :**

**10 M**

**a) Draw a line plan of primary health center in a village. Show all dimensions and positions of doors and windows.**

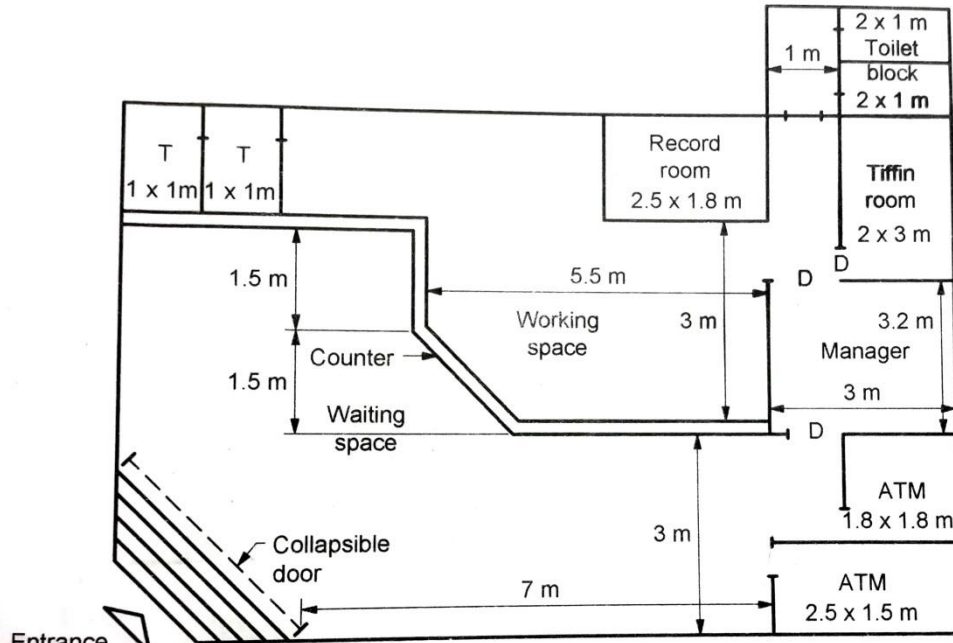
**05 M**

Sr. No.	Particulars	Dimensions
1	Entrance and Waiting Space	
2	Doctor's room	3 X 3.6 m
3	Examination room	3X4 m
4	Operation room	4X5.5m
5	Circulation space	
6	Wards: a) Maternity b) General	8X10 m <sup>2</sup> /bed
7	Medical Store	3.5X4.75 m
8	Office	12m <sup>2</sup>
9	Laboratory	15m <sup>2</sup>
10	Parking Space	
11	Family Planning unit	
12	Residence: a) Doctor b) Servants	60-90 m <sup>2</sup> / head 40-60 m <sup>2</sup> / head



**Note-: Student may draw any appropriate plan related to Primary Health center so accordingly gives credit to them.**

b) Draw line plan of bank building at city. Show all units with dimensions and positions of doors and windows. 05 M

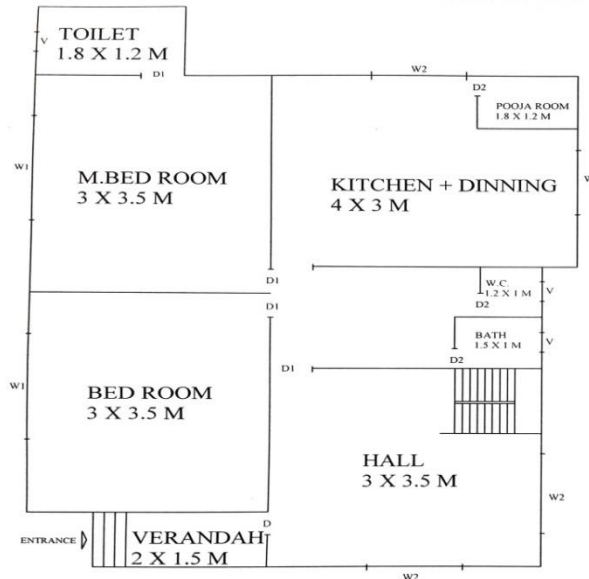


Line plan

Scale 1:100

**Note:- Student may draw any appropriate plan related to Bank building so accordingly gives credit to them.**

c) Draw a line plan of residential building having hall, bedroom, kitchen, master bedroom, staircase, pooja, store, WC bath, attach toilet and verandah. 05 M



LINE PLAN OF RESIDENTIAL BUILDING

SCALE=1.:100

**Note:- Student may draw any appropriate Line plan by assuming suitable data related to residential building so accordingly gives credit to them.**