



**MAHARASHTRA STATE BOARD OF TECHNICAL EDUCATION**  
(Autonomous)

(ISO/IEC -270001 – 2005 certified)

**WINTER -2016 EXAMINATION**

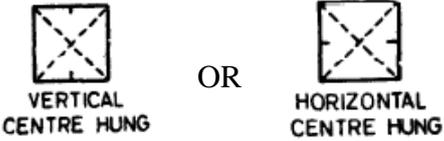
Subject code: 17309

Model Answer

Page No: 01/ 11

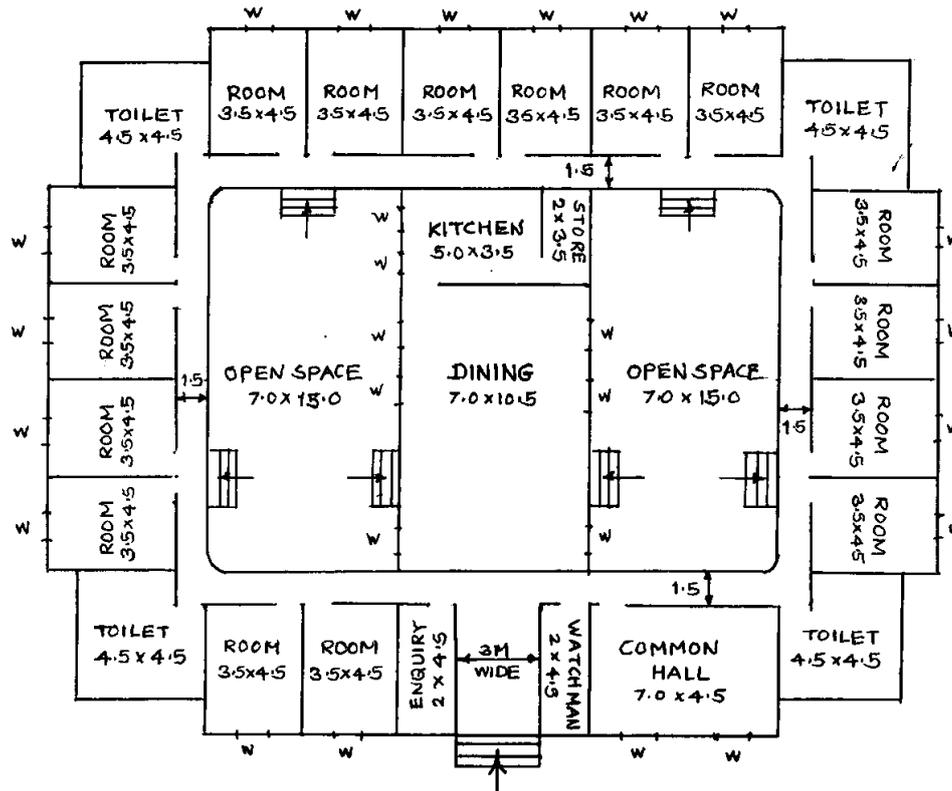
**Important Instructions to examiners:**

- 1) The answer should be examined by keywords 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 error such as grammatical, spelling errors should not be given more importance. (Not applicable for subject English and communication skill).
- 4) While assessing figures, examiner may give credit for principal components indicated in the figure. The figure 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 the some cases, the assumed constants values may vary and there may be some difference in the candidates answer 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

Q.No.	Question and Model Answers	Marks
<b>Q.1</b> (A)	<b>Answer any THREE:</b>	<b>12</b>
(i)	<b>Draw Graphical Symbols for:</b> (a) Brickwork, (b) Timber, (c) Centre hung window, (d) Revolving Door	
	<p><b>Graphical Symbols for:</b></p> <p>(a) Brickwork </p> <p>(b) Timber </p> <p>(c) Centre hung window  VERTICAL CENTRE HUNG      OR      HORIZONTAL CENTRE HUNG</p> <p>(d) Revolving Door </p> <p style="text-align: center;">*(Note- 01 mark each)</p>	<b>04*</b>
(ii)	<b>Draw neat sketches of following lines:</b> (a) Centre Line, (b) Section Line, (c) Hidden Line, (d) Extension Line	

	<p>(a) Centre Line </p> <p>(b) Section Line </p> <p>(c) Hidden Line </p> <p>(d) Extension Line </p> <p style="text-align: center;">*(Note- 01 mark each)</p>	<b>04*</b>
<b>(iii)</b>	<p><b>Define :</b>  <b>(a) Elegance, (b) Roominess</b></p>	
	<p><b>(a) Elegance:</b>  Elegance means the effect produced by elevation or the view of building looking from a particular direction, preferably from front side.</p> <p><b>(b) Roominess:</b>  The effect derived from space of a room (i.e. length, width and height) is called roominess.</p> <p style="text-align: center;"><b>OR</b></p> <p>A psychological feeling of bigness or smallness of space or a room is called Roominess.</p>	<b>02</b>  <b>02</b>
<b>(iv)</b>	<p><b>Give the values of minimum requirements for:</b>  <b>(a) Size of Bathroom, (b) Size of Kitchen, (c) Plinth of Residential Building, (d) Width of Stair for Residential Building.</b></p>	
	<p><b>(a) Size of Bathroom:</b> 1.5 m x 1.2 m or 1.2 x 2.1 m OR  (minimum area 1.80 m<sup>2</sup>)</p> <p><b>(b) Size of Kitchen:</b> With store – 5.50 m<sup>2</sup> (width 1.80m) OR  Without store – 4.50 m<sup>2</sup> OR  With dining – 9.50 m<sup>2</sup> (width 2.40 m)</p> <p><b>(c) Plinth for Residential Building:</b> 0.45 m, 0.60 m or 0.75 m</p> <p><b>(d) Width of Stair for Residential Building:</b> 0.90 m or 1.0 m</p> <p style="text-align: center;">*(Note- 01 mark each for any one correct dimension)</p>	<b>04*</b>
<b>Q.1 (B)</b>	<p><b>Draw to a suitable scale the Line Plan for a Polytechnic Girls Hostel Building with an Intake Capacity of 60 Girls. Show position of doors and windows also.</b></p>	<b>08</b>
	<p style="text-align: center;"><b><u>Important Note: Student may draw any other line plan of Polytechnic Girls Hostel Building. So give credit accordingly.</u></b></p>	

08\*



**POLYTECHNIC HOSTEL FOR GIRLS**  
(INTAKE CAPACITY = 60)

(ALL DIMENSIONS IN METER)

*\*(Note- for neat and suitable line plan with scale 04 marks, for door and window position -02 marks and 02marks for labeling)*

**Q.2** Figure 1 shows a line plan of a residential building. Draw to a Scale of 1:50, the following views, show all the dimensions and label the parts.

- (i) Developed Plan
- (ii) Front Elevation
- (iii) Section Along A-B

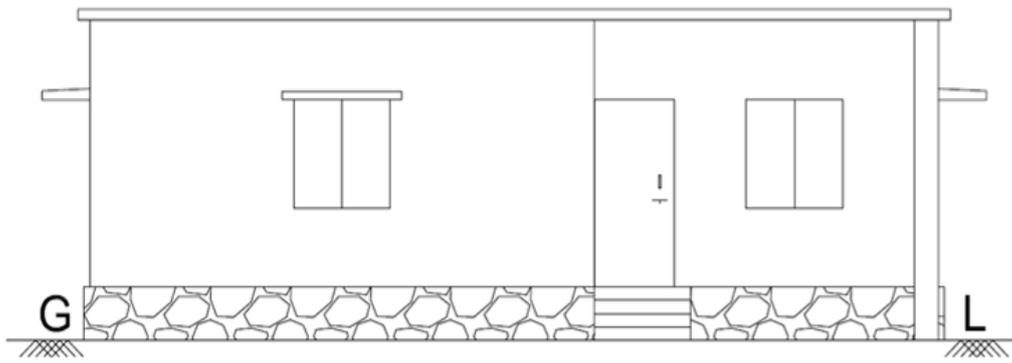
Use following construction notes: (a) Depth of foundation 1.0 m below G.L., (b) Plinth height above G.L. 600 mm, (c) Floor to Slab bottom height of all rooms is 3000 mm and that for W.C. and bath is 2400 mm, (d) Wall thickness in Super structure is 300 mm for main walls and 200 mm thick for walls in W.C. and bath, (e) R.C.C. Slab of 120 mm thickness, (f) Chajja Projection – 600mm, (g) Assume suitable position for Doors and Windows, (h) Assume any other suitable data if required.

12  
08  
08

**Important Note:**

**Student may draw Plan, elevation and section by using other suitable scale than 1:50. So give credit accordingly.**

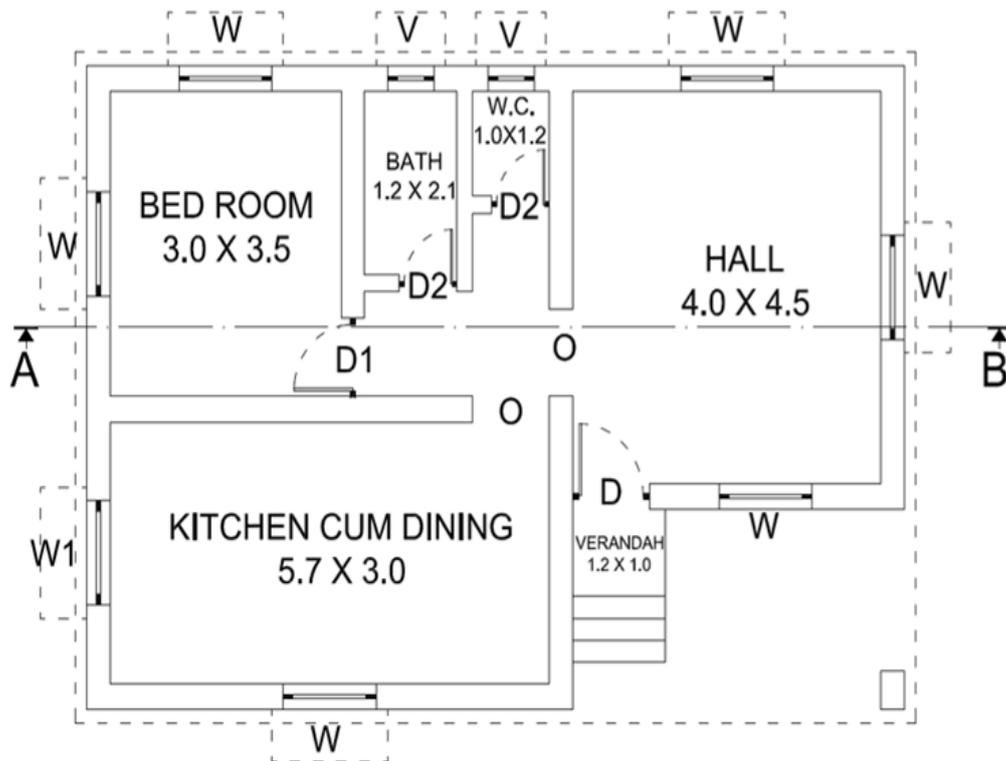
**In Question No-2 Section Line AB is not provided in given Plan. Student may assume any Suitable section line and draw a section, So give credit accordingly.**



08\*

**Elevation**

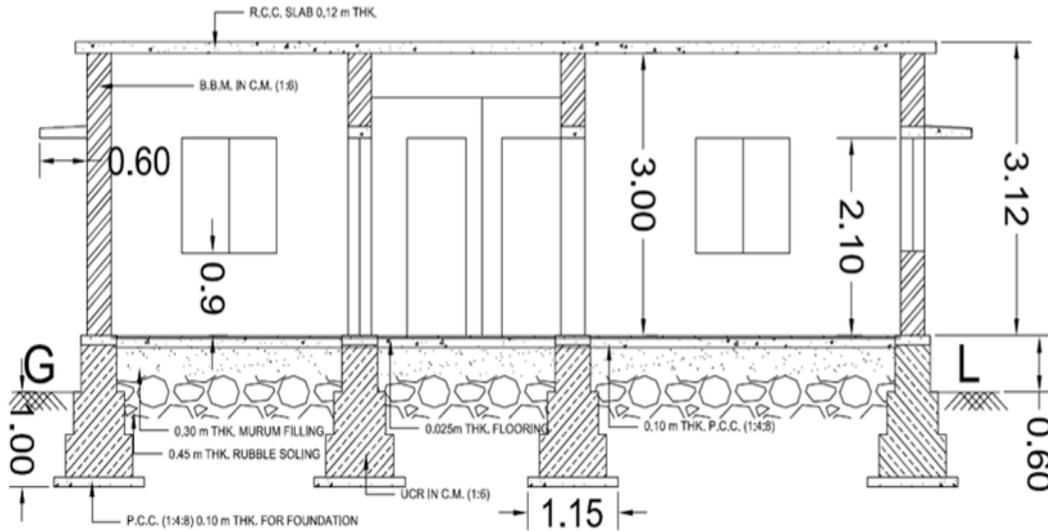
*\*(Note- for correct projected line work 02 marks, for elevation (i.e. correct heights, symbols, steps, and door - window position - 01 mark each) with scale 04 marks, and 02marks for neatness and labeling)*



12\*

**Developed Plan**

*\*(Note- for Wall thickness - 02 marks, Section line- 01 mark, Position of Window- 02 marks & Door- 02 marks, Labeling and Dimension- 02 marks, Neatness and Line work - 03 Marks)*



**Section AB**

*\*(Note- for Correct Section - 04 marks, All Dimensions and labeling - 02 marks, Material Symbols – 02 Marks,)\**

08\*

**Q.3 Answer any THREE:**

24

**(a) Prepare Schedule of Opening and area statement for a building shown in figure No.:1, Q. No.2.**

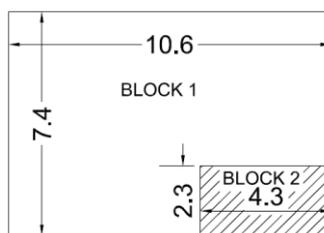
08

**(i) Schedule of Openings:**

Sr.No.	Symbol	Description	Size in m	Nos.
1	D	T.W. Panelled door or Decorative type door	1.0 x 2.1	1
2	D1	Flush door	0.9 x 2.0	1
3	D2	Flush door or PVC door	0.8 x 1.8	2
4	O	Opening	1.0 x 2.0	2
5	W	Alluminium Sliding Window	1.2 x 1.2	6
6	W1	Alluminium Sliding Window	1.4 x 0.8	1
7	V	Louvered window	0.6 x 0.6	2

04

**(ii) Area Statement**



04\*

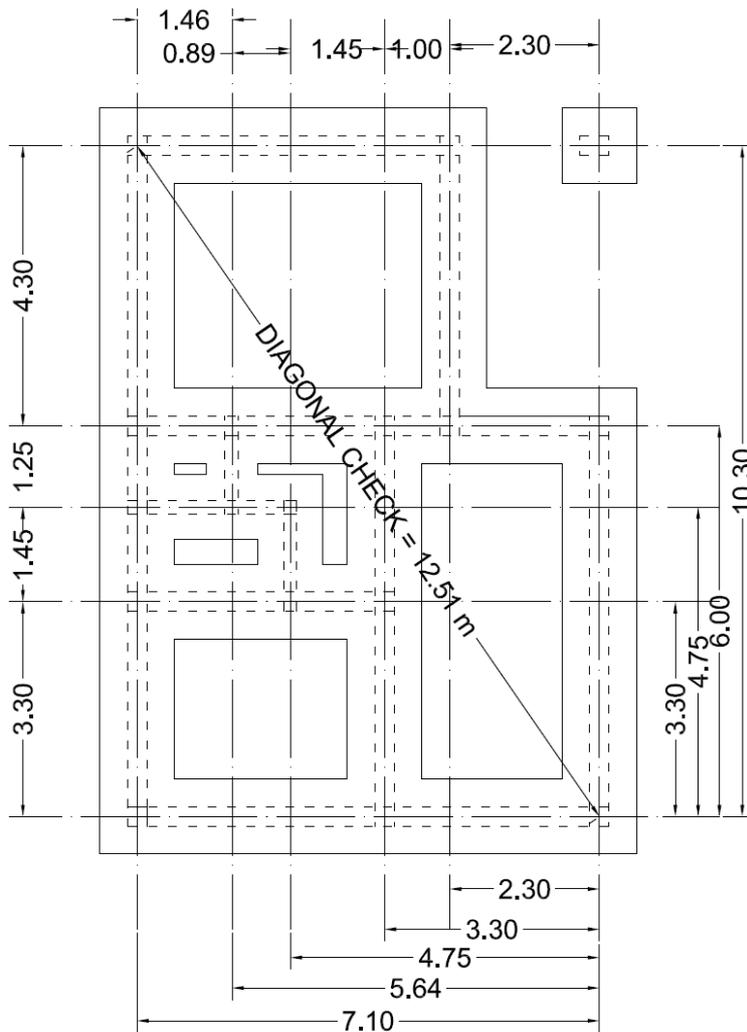
**Plot Area** = (considering 3 m front margin and all other margins as 1.5 m)  
 =  $(10.6 + 1.5 + 1.5) \times (7.40 + 1.5 + 3.0)$   
 = 161.84 Sq.M  
**Built Up Area** = Area of Block1 – Area of Block2  
 =  $(10.6 \times 7.4) - (4.3 \times 2.3)$   
 = 68.55 Sq.M  
**Carpet Area** =  $(3.0 \times 3.5) + (4.0 \times 4.5)$   
 = 28.5 Sq.M  
**F.S.I. Allowed** = 1.0 (assumed)  
**F.S.I. consumed** = Built up area/ Plot area =  $68.55/161.84$   
 = 0.423

*\*(Note- 1 mark each for any four points with correct values)*

**Important Note:**  
**Student may assume any other side margins and calculate areas.**  
**So give credit accordingly.**

(b) Draw to a suitable scale foundation plan for a building shown in Fig. No. 1 of Q. No. 2.

08

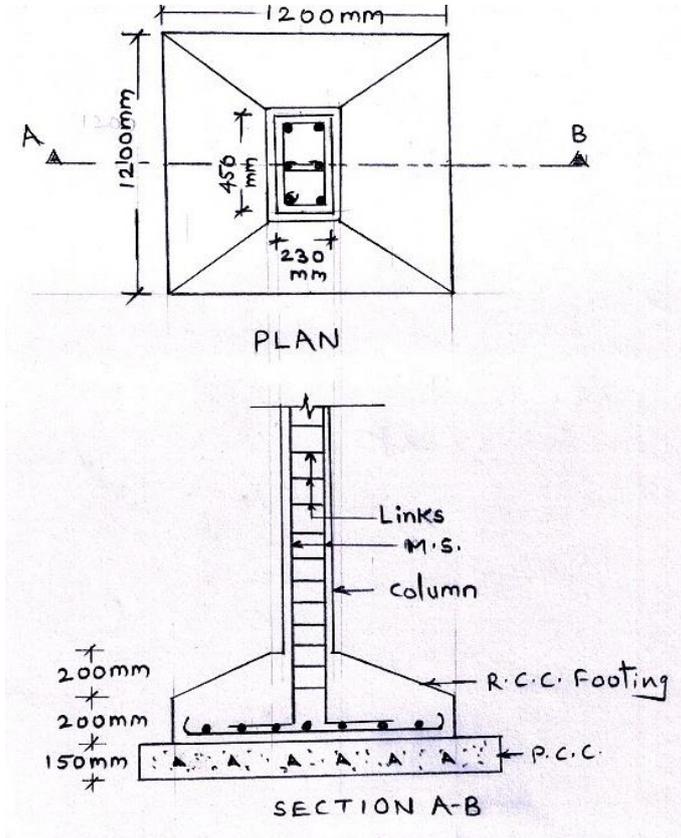


08\*

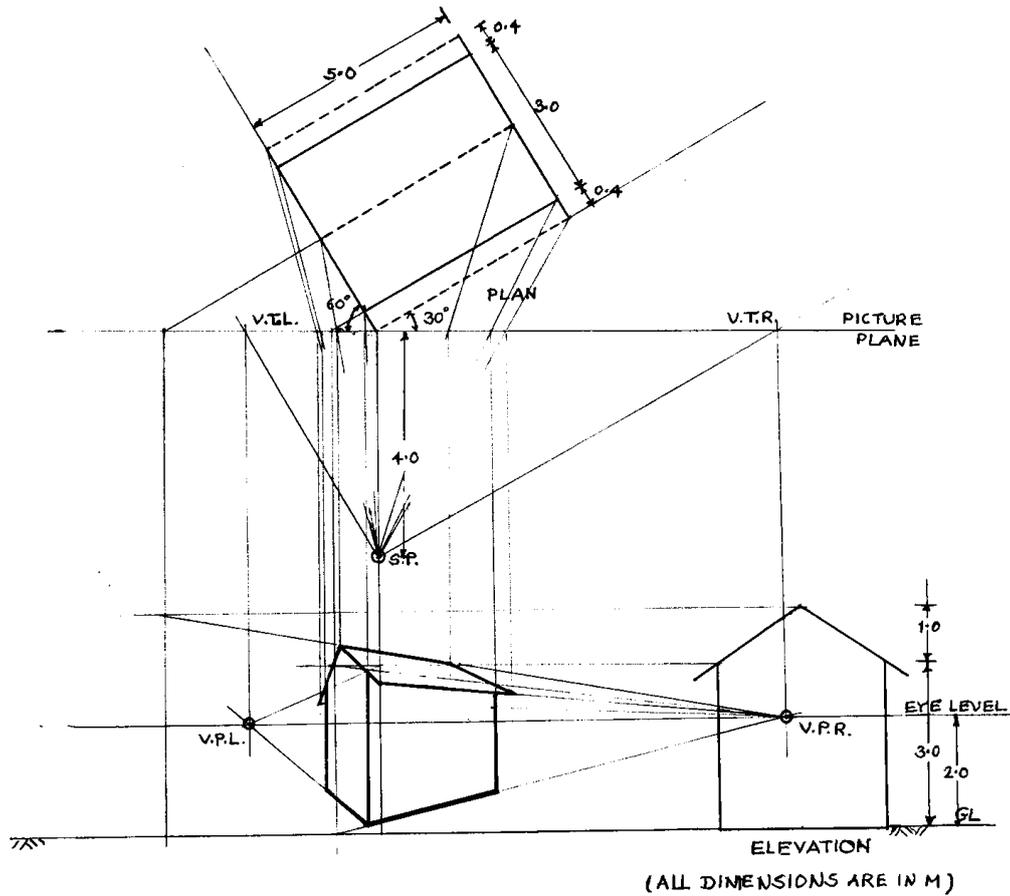
**Foundation Plan**



	<p><b>Importance of Prospect-</b></p> <ol style="list-style-type: none"> <li>1) Prospect means taking advantage of desirable views available from windows, doors, balconies, terraces or features outside the building such as garden, lake, sea, river, hill, etc.</li> <li>2) It also includes blocking undesirable views such as slum area, gutters, garbage dump, railway track, etc. by providing blank walls.</li> <li>3) Therefore by proper positioning of doors and windows in external walls, prospect can be achieved.</li> <li>4) For example: i) If there is lake towards east side we can provide balconies, terraces and windows towards that direction and ii) if there is slum area towards west direction we can provide a blank wall towards that direction.</li> </ol> <p style="text-align: center;"><i>*(Note- 1 mark for one example)</i></p> <p style="text-align: center;"><b><u>Important Note: Student may draw figure to explain the importance of principle. So give credit accordingly. i.e. 02 marks for importance, 01 mark for figure and 01 mark for example.</u></b></p>	<p><b>02</b></p> <p><b>02*</b></p>
<b>Q.4</b>	<b>Answer any TWO:</b>	<b>16</b>
<b>(a)</b>	<b>Define: (i) Built-up Area, (ii) Carpet Area, (iii) Plinth Area, (iv) Floor Area</b>	<b>08</b>
	<p><b>(i) 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.</p> <p><b>(ii) Carpet Area:</b> This is the floor area of the usable rooms at any floor OR the area where carpet can be laid.</p> <p><b>(iii) Plinth Area:</b> This is the built up covered area measured at the floor level of the basement or any storey.</p> <p><b>(iv) 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.</p>	<p><b>02</b></p> <p><b>02</b></p> <p><b>02</b></p> <p><b>02</b></p>
<b>(b)</b>	<b>List the drawings and documents to be submitted for getting approval from Sanctioning Authority.</b>	<b>08</b>
	<p><b>The various drawings to be submitted for getting approval from Sanctioning Authority are :</b></p> <ol style="list-style-type: none"> <li>1) Site Plan : Along with block plan showing plinth outline and area statement</li> <li>2) Ground floor plan, first floor plan, plans of higher floors. Basement floor plan, terrace plan and car park plan.</li> <li>3) Elevation</li> <li>4) Section passing through staircase, W.C., bath etc giving details upto foundation.</li> <li>5) Schedule of doors, windows and grill work.</li> </ol>	<b>08*</b>

	<p>6) Schedule giving notes for type of construction. Foundation work, R.C.C. work etc.</p> <p><b>Along with the plan, the following documents must be submitted :</b></p> <ol style="list-style-type: none"> <li>1) Notice to execute the proposed work in the standard form.</li> <li>2) Undertaking from the architect in the standard form.</li> <li>3) Extract from property register stating the details regarding the owner and land.</li> <li>4) Plan from city survey office showing boundaries of the plot and adjoining survey numbers.</li> <li>5) Certificate regarding to area of plot given by a corporation or town planning department.</li> </ol> <p style="text-align: center;">*(Note- 1 mark each for any 08 points)</p>	
<p>(c)</p>	<p><b>Draw detailed Plan and Section of R.C.C. column footing with following data:</b></p> <ol style="list-style-type: none"> <li>(i) Size of footing 1200 mm x 1200 mm</li> <li>(ii) Size of column 230 mm x 450 mm</li> </ol>	<p><b>08</b></p>
	<p><b>Detailed Plan and Section of R.C.C. column footing:</b></p> 	<p><b>04</b></p> <p><b>04</b></p>
<p><b>Q.5</b></p>	<p><b>Fig. No. 2 shows a plan and elevation of a small structure. Draw to a suitable scale, two point perspective drawing. Assuming eye level at 2.0 m above G.L., retain all construction lines.</b></p>	<p><b>12</b></p>
	<p style="text-align: center;"><b><u>Important Note:</u></b>  <b><u>In Question position of station point is not given. Student may assume any Suitable position and draw a perspective, So give credit accordingly.</u></b></p>	

12\*



*\*(Note- For drawing neatly picture plane-01 mark, plan-01 mark, elevation-01 mark, two vanishing points-01 mark, construction lines-01 mark, true heights-01 mark, base or body of object-03 marks, top of object-03 marks=total 12)*

OR

**Q.5** Draw to a suitable scale two point perspective drawing for steps shown in Fig. No. 3. Assume eye level at 1.5 m above ground level and station point at 3.0 m from picture plane along Central visual Ray. Retain all construction lines.

12

*\*(Note- For drawing neatly picture plane-01 mark, plan-01 mark, elevation-01 mark, two vanishing points-01 mark, construction lines-01 mark, true heights-01 mark, four steps-04 marks, side platform-02 marks=total 12)*

12\*

