



## MAHARASHTRA STATE BOARD OF TECHNICAL EDUCATION

(Autonomous)

(ISO/IEC-270001 – 2005 certified)

### WINTER-13 EXAMINATION

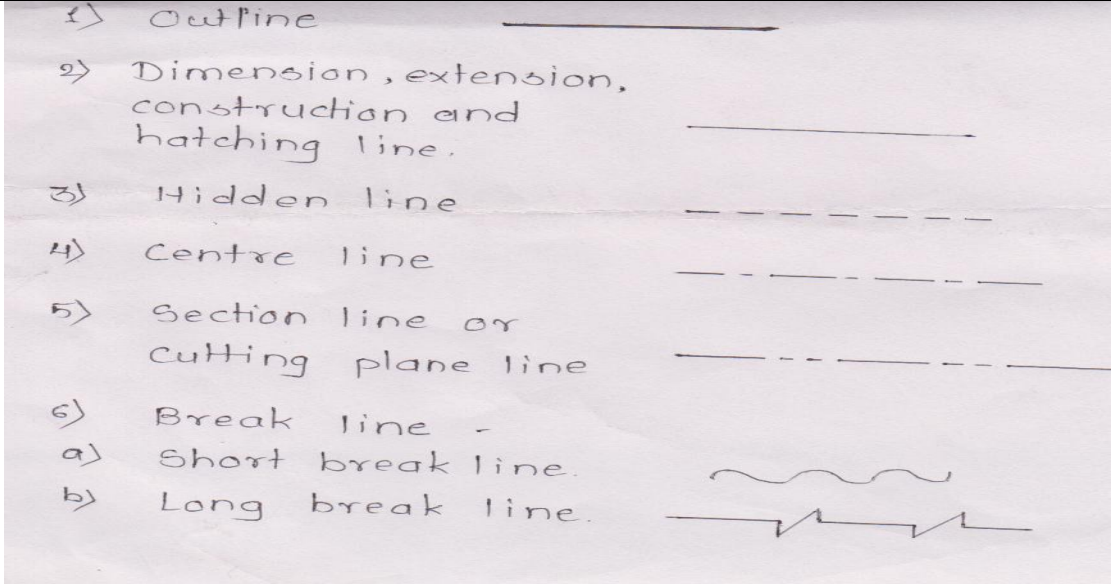
**Subject code: 17309**

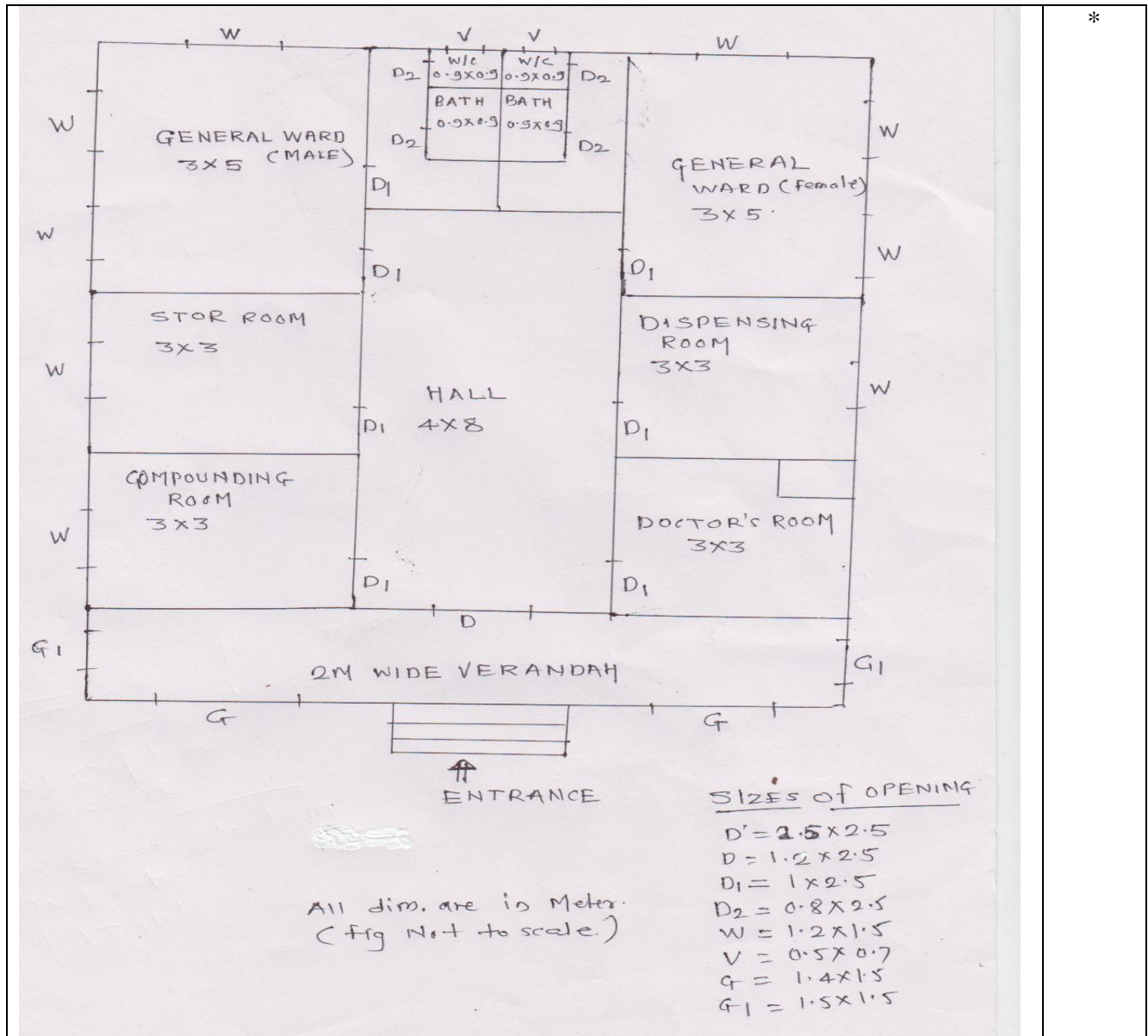
**Model Answer Page No:1/12**

**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.

<b>Q1) a) Attempt any THREE of the following</b>	12
<b>i) Draw the symbol for: 1) Concrete 2) Timber 3) Wash Basin 4) Brick Masonry.</b>	
<p>Hand-drawn symbols for:         <ul style="list-style-type: none"> <li>1) Concrete: A rectangle with small triangles inside.</li> <li>2) Timber: A rectangle with wavy lines representing wood grain.</li> <li>3) Wash basin: A rectangle with a semi-circle at the bottom.</li> <li>4) Brick masonry: A rectangle with diagonal lines, followed by "OR" and a standard brick pattern.</li> </ul> </p>	01 01 01 01

<p><b>ii) Draw the any four types of line used in civil engineering drawing.</b></p>  <p style="text-align: center;">*( Note Draw any four lines 1 mark each)</p>	<p style="text-align: center;">*</p>
<p><b>ii) Explain the importance of “Aspect and Prospect” in building planning.</b></p>	
<p><b>Importance of “Aspect-</b>          1) To enjoy natural gifts such as sun rays, light, breeze etc.          2) To place the rooms in the building so that user can enjoy natural gifts and fill comfortable and also enjoy beautiful views such as hills station ,sea , river, garden, landscape etc. <b>Importance of Prospect –</b></p>	<p style="text-align: center;">02</p>
<p>1) To enrich the outside good views such as sun rise ,sun set, hilly areas, river, etc.          2) To avoid the bad views such as slum area, nallah, garbage disposal place , etc.</p>	<p style="text-align: center;">02</p>
<p><b>iv) State the minimum dimensions provided for</b></p> <ol style="list-style-type: none"> <li><b>1) Rise and tread in residential building</b></li> <li><b>2) Sill height</b></li> <li><b>3) Plinth level</b></li> <li><b>4) Kitchen platform height</b></li> </ol>	
<p>1) Rise = 190 mm. Tread = 250mm.</p>	<p style="text-align: center;">01</p>
<p>2) Sill height = 300mm</p>	<p style="text-align: center;">01</p>
<p>3) Plinth level =450mm.</p>	<p style="text-align: center;">01</p>
<p>4) Kitchen platform height = 600mm.</p>	<p style="text-align: center;">01</p>
<p><b>b) Draw to suitable scale a line plan of primary health center (PHC) showing deferent units. Show position of door and windows.</b></p>	<p style="text-align: center;">08</p>



\* Note (Line plan 4 marks, 2 marks labeling, 2 marks for doors and windows)

Q 2 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.

i) Developed plan

12

ii) Elevation

06

iii) Section along AB.

10

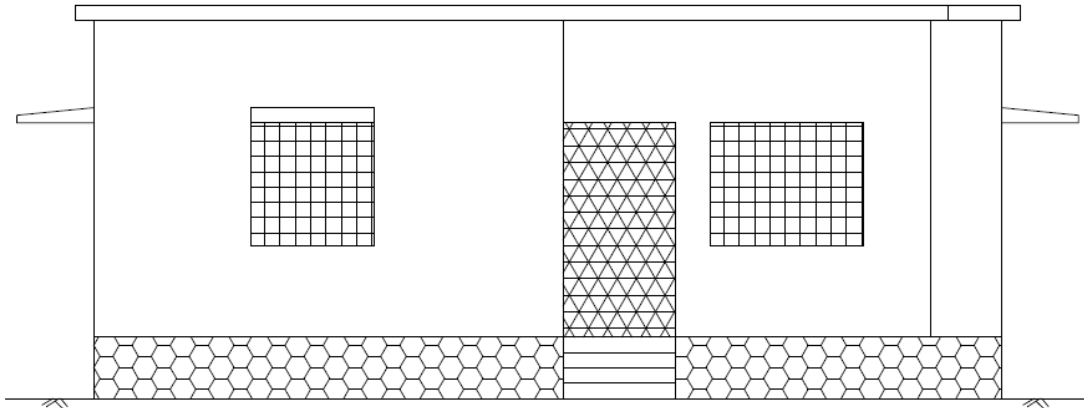
Use the following construction note.

a) Depth of foundation 1000 mm below GL.

b) Plinth height 600mm.

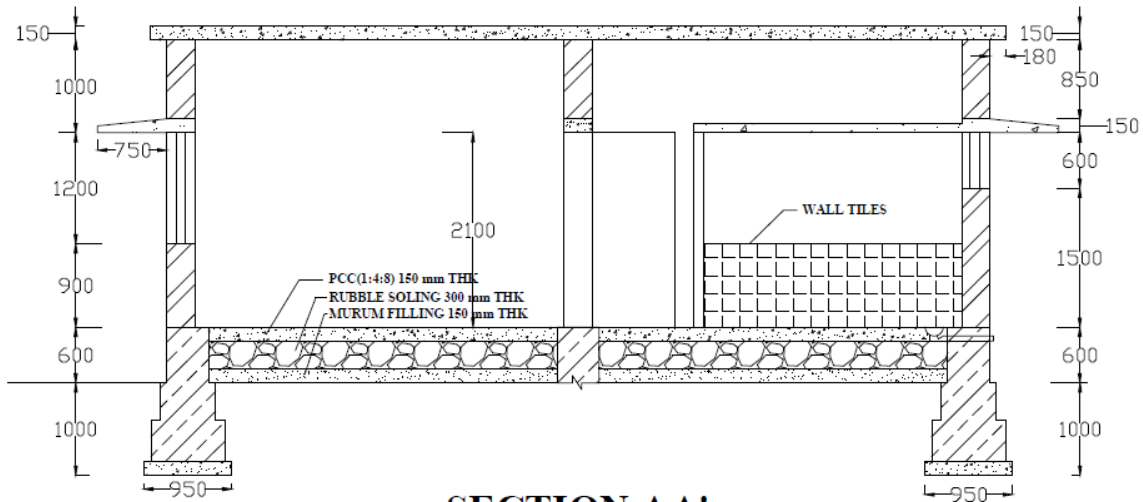
c) Height of bottom of slab from floor 3100mm.





**ELEVATION**

**\*Note: Projected Line work- 02 marks, Elegance- 02 marks, Neatness – 02 Marks**



**SECTION AA'**

**\*Note: Line work- 02 marks, correct dimension- 04 marks, Symbols of materials- 02 marks, Neatness – 02 Marks**

**Q.3 Attempt any THREE of the following:**

- a) Prepare schedule of opening and area statement for Q.No.2

\*

\*

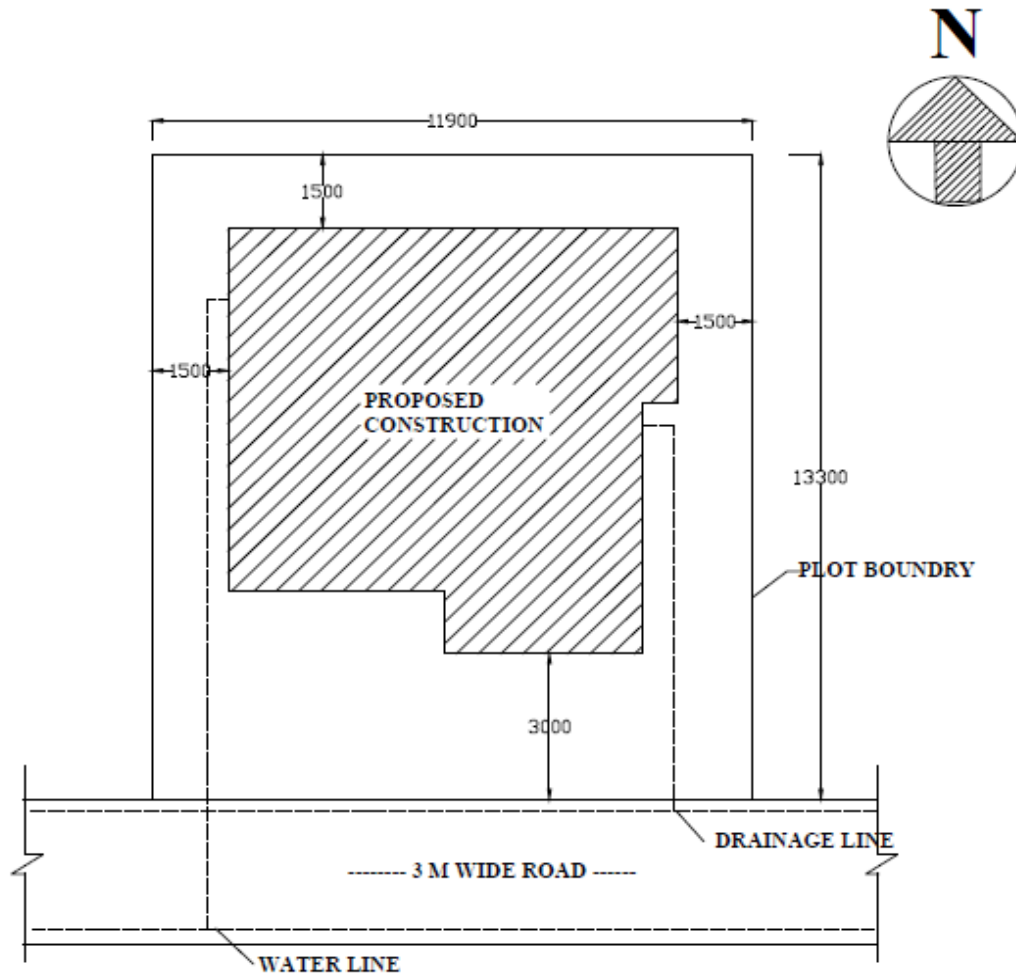
24

<b>SCHEDULE OF OPENING</b>					
SR. NO.	NAME OF OPENING	SYMB OL	SIZE IN MM	NOS	DESCRIPTION
1	SLIDING GATE	SD	1200X2100	01	M .S .COLLAPSIBLE GATE
2	DOOR	D	1200X2100	01	CCTW FULLY PANELED SINGLE SHUTTER
3	DOOR	D1	900X2100	03	FLUSH DOOR SINGLE SHUTTER
4	DOOR	D2	750X2100	02	PVC SHUTTER
5	OPENING	OP	900X2100	01	----
6	WINDOW	W1	1200X1200	02	ALUMINUM SLIDING GLAZED WINDOW M S GRILLS
7	WINDOW	W2	1500X1200	03	ALUMINUM SLIDING GLAZED WINDOW M S GRILLS
8	WINDOW	W3	1500X900	01	ALUMINUM SLIDING GLAZED WINDOW M S GRILLS
9	VENTILATOR	V	450X600	02	LOUVERED WINDOW
<b>AREA STATEMENT</b>					
1	PLOT AREA			158.27 m <sup>2</sup>	
2	BUILTUP AREA			70.00 m <sup>2</sup>	
3	FSI			0.44	
<b>b) Draw to the suitable scale a site plan for a building mentioned in Q. No. 2</b>					

05

03

08



**SITE PLAN**

**Scale : 1:200**

*\*Note: Correct side margin- 02 marks, North direction- 02 marks, Water & Drainage line- 02 marks, Line work & Neatness– 02 Marks)*

**C) Suggest various services units and sizes for a canteen for 200 people.**

**Various service unit for a canteen-** 1) Dining hall      2) Kitchen      3) Store room  
 4) Pantry      5) wash room      6) cash counter      7) Drinking water taps      8) Toilet

**Sizes for a canteen for 200 people -** 1) Dining hall = 400 to 600 m<sup>2</sup>  
 2) Kitchen = 10 m<sup>2</sup>      3) Store room = 10 m<sup>2</sup>      4) Pantry = 6 m<sup>2</sup>  
 5) wash room = 15m<sup>2</sup>      6) cash counter = 1.2 m wide      7) Drinking water tap = 1 for 20 users  
 8) Toilet = W.C.(1.0mx1.2m) 1for 25 users

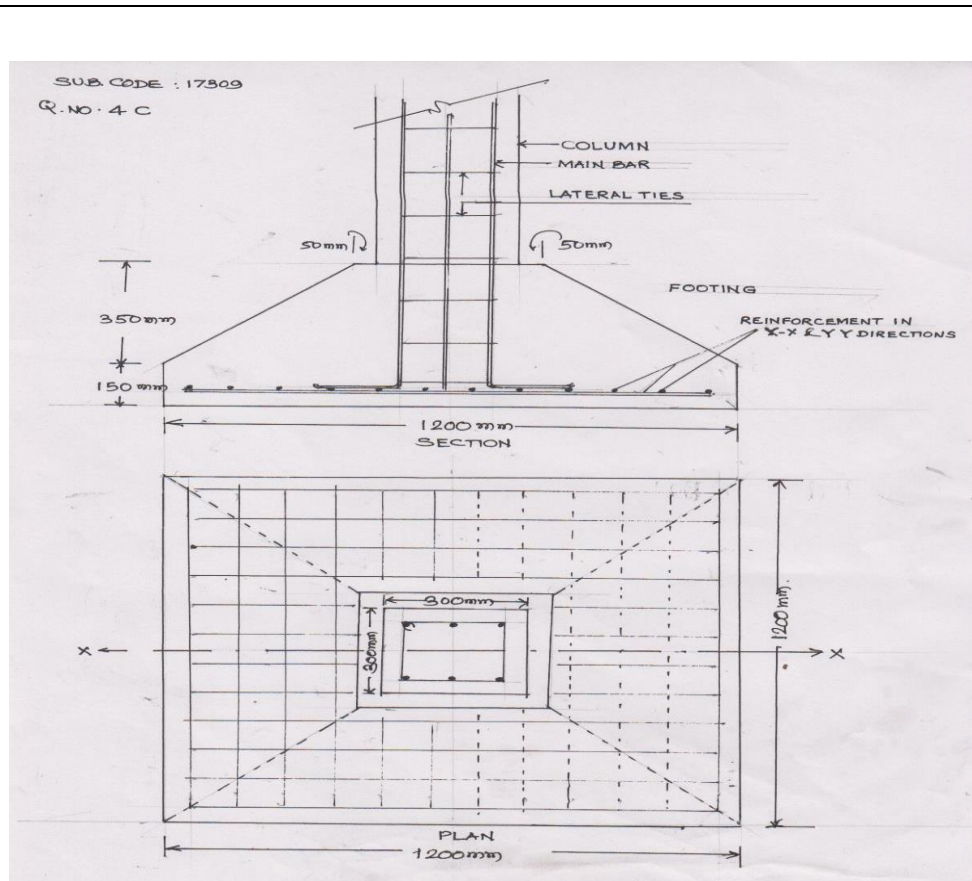
\*

½  
 mark  
 each

<b>d) i) State the importance of submission drawing and working drawing in civil engineering works.</b>	
<b>Importance of submission drawing -</b> 1) To prepare details of proposed building as per bye laws. 2) To take the sanction from sanctioning authority	02
<b>Importance of Working drawing -</b> 1) To show details of structural element such as stair case, cantilever balcony, lintel chajja, etc. 2) To explain the details to workman at site and execute the work at site.	02
<b>ii) Define one-point perspective and Two-point perspective.</b>	
<b>One-point perspective-</b> It is the prospective view in which there is only one vanishing point. It is used for internal details of building.	02
<b>Two-point perspective- It</b> is the prospective view in which there is two vanishing point. It is used for external details of building.	02
<b>Q.4 Attempt any Two of the following -</b>	16
<b>a) Explain the terms orientation and furniture requirements.</b>	
<b>Orientation-</b> Orientation of a building is the proper placement of building and its component rooms with respect to the weathering elements such as sun, wind, rain and topography. It enables the resident to enjoy the desirable features of nature and avoid the undesirable ones.	02
Maximum advantages of sun and wind can be taken by proper orientation of building. For proper orientation following suggestions are given.	02
<b>i)</b> Provide the large walls towards east and west.	
<b>ii)</b> Provide sun trackers on the sunny faces.	
<b>iii)</b> Provide verandahs on south and west so that the walls on those sides are less heated.	
<b>iv)</b> Provide proper aspect of various rooms such as kitchen, bed room, living room, w/ c and bath etc.	





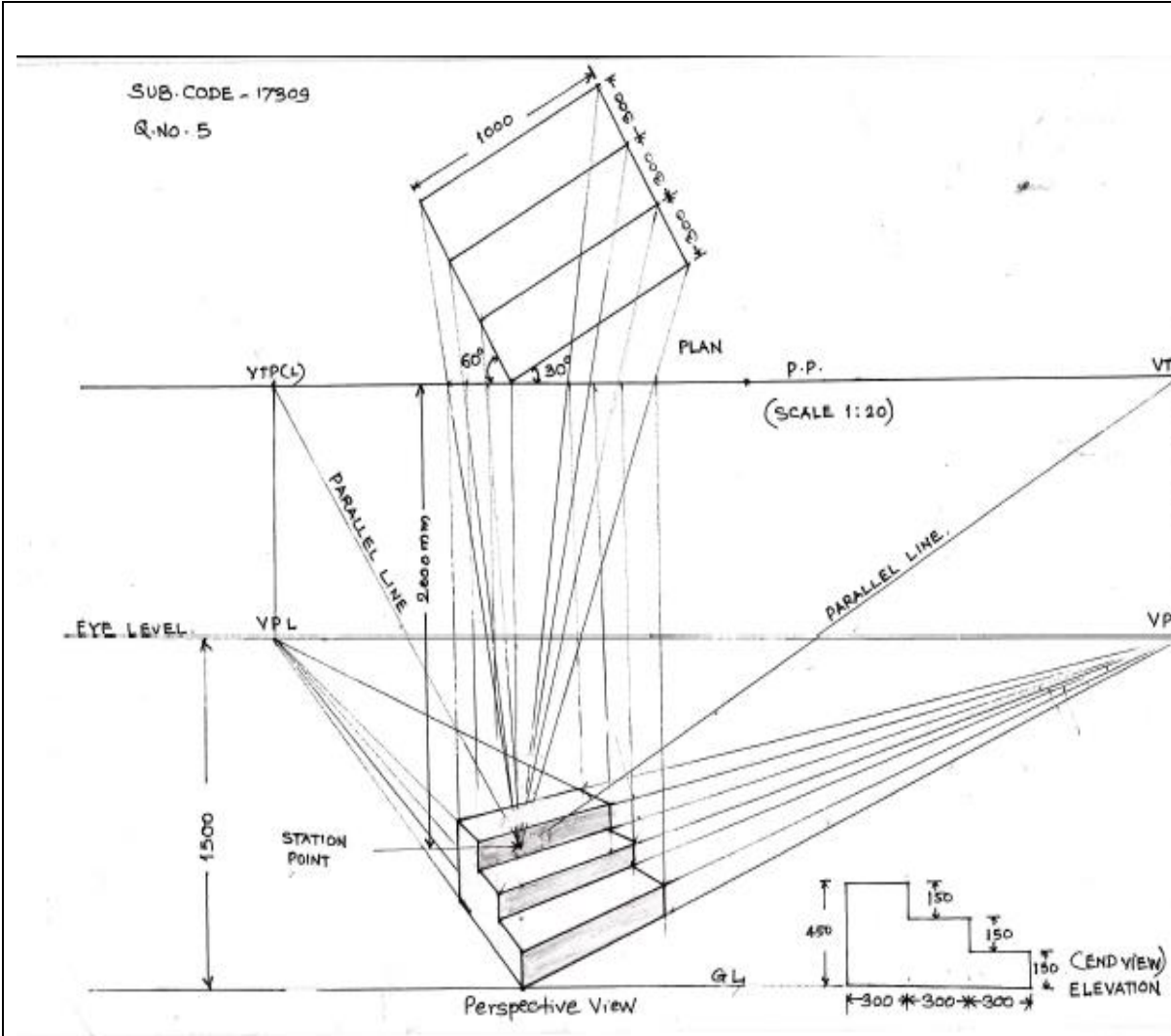


\*

*\* Note- ( Plan 4 marks, Section 4 marks)*

**Q 5 Draw the two point perspective view of a small object shown in fig. No.2 Retain all construction lines. Take key level at 1.50m. above GL.All dimension are in mm. Assume any data if required.**

12



\*

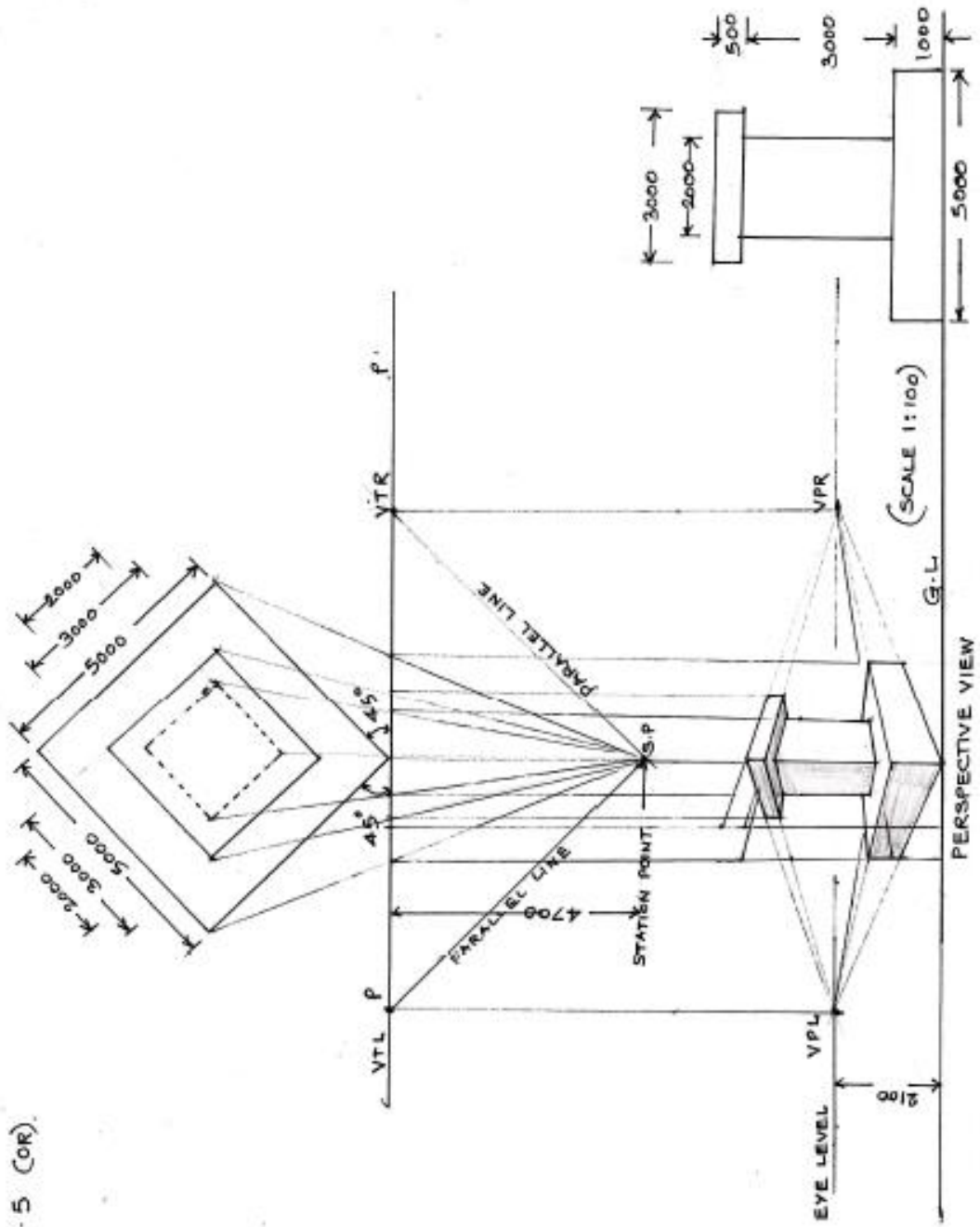
\*Note- ( Plan 2 marks , Elevation 2 marks, construction line 2marks, labeling 1 marks, perspective view 5 marks. )

OR

12

Draw to a suitable scale a two point perspective drawing. Assume eye level at 2.1 m. above GL. The observer stands at a distance 4.7m. along central visual ray. Retain all construction lines. Assume additional data if required

SUB. CODE .17309  
Q. NO. 5 (OR)



*\*Note- ( Plan 2 marks , Elevation 2 marks, construction line 2marks, labeling 1 marks, perspective view 5 marks. )*