MAHARASHTRA STATE BOARD OF TECHNICAL EDUCATION

(Autonomous)
(ISO/IEC-27001-2005 Certified)

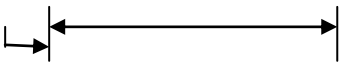
WINTER-12 EXAMINATION

Subject Code: 12037 Model Answer Page No: 01/10

Subject-Building Drawing and Design Marks -100

Q1. Attempt any **Two** of the following. (4x2=8)

a) Conventional symbols with sizes- 1x4=4

1. Extension Line 

These lines extend by 4 mm beyond the dimension line. Line should not touch the feature but start from a distance of @ 2 mm.

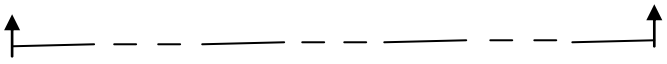
2. Hidden line- - - - - - - - - - - - - - - - - - - -

Short dashes of approximately 2 mm lengths separated by 1mm space

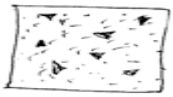
3. Center Line -Alternate long and short lines should have proportion

6:1 to 4:1

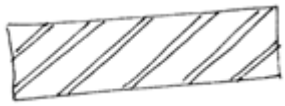
4. Section line—



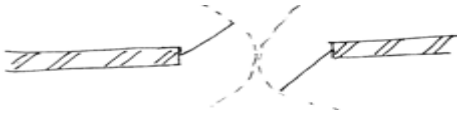
b) Graphical symbols-

1. Concrete 

2. Earth 

3. Brick masonry 

4. Double leaf double swing door



c) i) UCRM--- Uncoursed rubble masonry (01)

WC---Water closet (01)

ii) Scale adopted for working drawing (01)

1:200

1:100

1:50

For enlarged detail (01)

1:5

1:2

1:1

Q2.a) i) Window opening in room (in percentage) with respect to floor area - 10 % -15% of floor area depending on the region.

ii) Kitchen-5.5 m^2 (min width 1.8m)

iii) Bathroom- 2x1.2m (with width of 1.2 m)

iv) Tread- residential - 0.25m

(1x4 = 4)

b) Significance of building rules and bye laws in relation to planning of building-

- Control on construction activity and construction parameter
- Facilitate well planned township
- Maximum benefit of natural resources.
- controlling population density
- Safety of structures and infrastructural facilities.
- Ultimately achieve harmony health, and well-being of population.

(04)

c) 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

(02)

Prospect - It is the view desired from a particular room when seen outside the window.

Depends on surrounding

Revealment of some natural beautiful pleasant scenery.

Concealing the unwanted views.

Placement of doors and windows in external walls affects prospect.

(02)

Q3. Line plan of high school-building. (12)

High school building should include unit's like- Classrooms: 1.2m^2/student

Teachers Room: Min 14 m^2

Laboratories: 3 to 4m^2/student

Assembly Hall: 0.5 to 0.6m^2/ Student

Circulation: 1.0m to 2.0 m

Library: 0.1m^2/Student Min. 50 m^2 And Max. 100m^2

Principal Cabin: Approx. 19 m^2

Office and Administrative Block: Approx. 29 m^2

Parking Area: 80 to 95 m^2 for 1500 students

Sanitary Block: As follows

Particulars	Male	Female
Wc	1 For 40	1 For 25
Urinals	1for 20	--
Wash Basin	1 For 40	1 For 40
Water Taps	1 For 50	1 For 50

Entrance: 48 m^2

Auditorium -0.65m^2 /student for 50% strength.

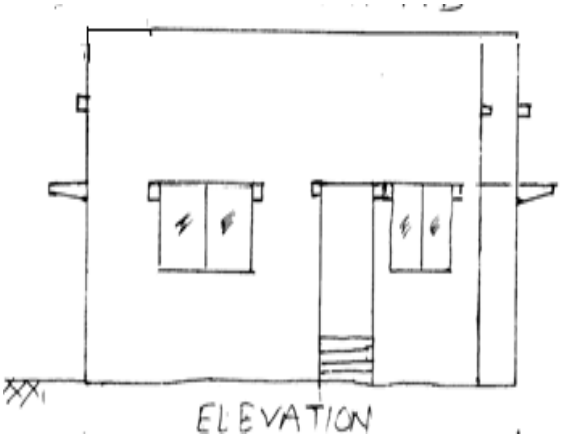
Common room- and canteen-0.1m^2/student each .

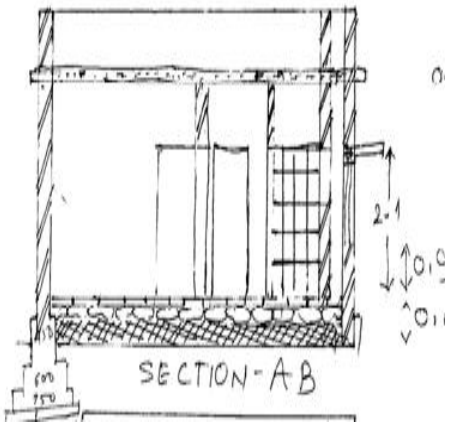
Q4. Correct plan, elevation, section, north line drawn from examiner's point of view will

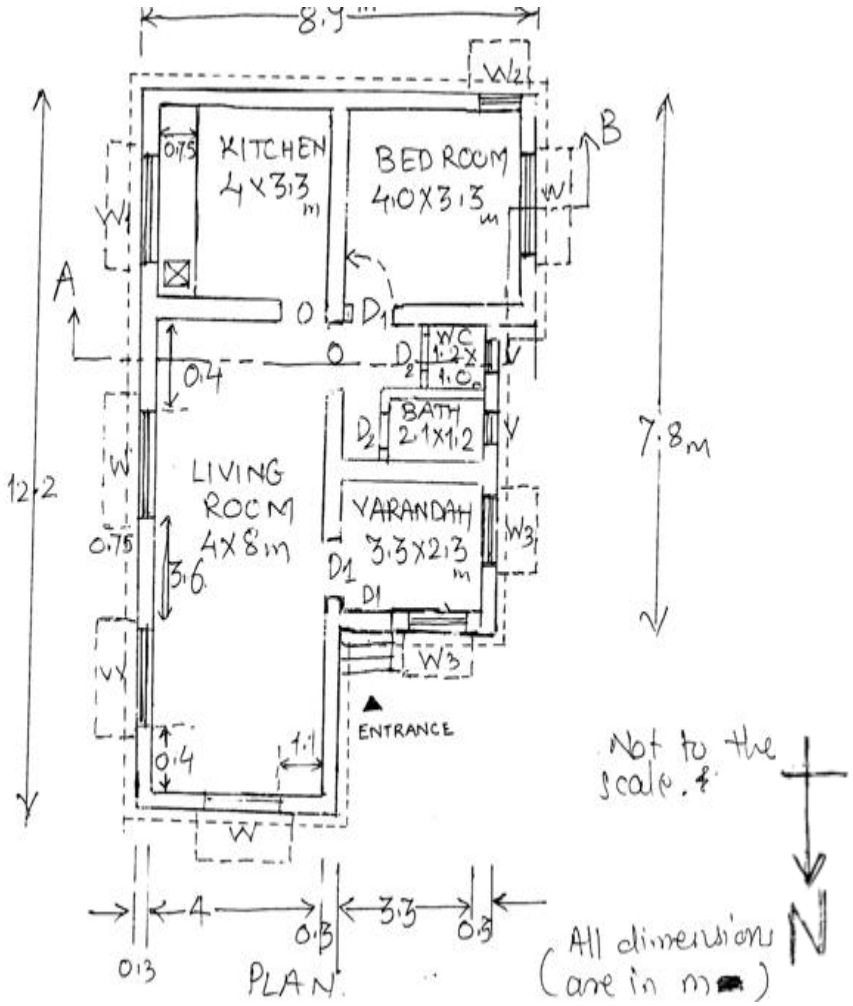
carry full marks, while checking consider following points

A) Dimensions
B) Positions of doors and windows
C) Labelling different openings
D) No of steps as per plinth height.
E) Chajja,slab projection, section line
F) Aspect of kitchen.
G) Neatness, accuracy, scale,cleanliness,regarding the drawing
H) Dimensions should not be shown in elevation.
I) Marking different levels, projections,
J) Positions of doors and windows in elevation
K) Correct projections in section
L) Elevational dimensions should be shown in section.
M) Plinth filling. Dado, windows in section.
N) proper symbols used in drawing
O) North direction- student should show the north direction considering aspect of kitchen.
P) Dimensions shown in question are mismatching hence verandah is adjusted appropriately.

Sample developed plan, elevation, section, north line is as follows.







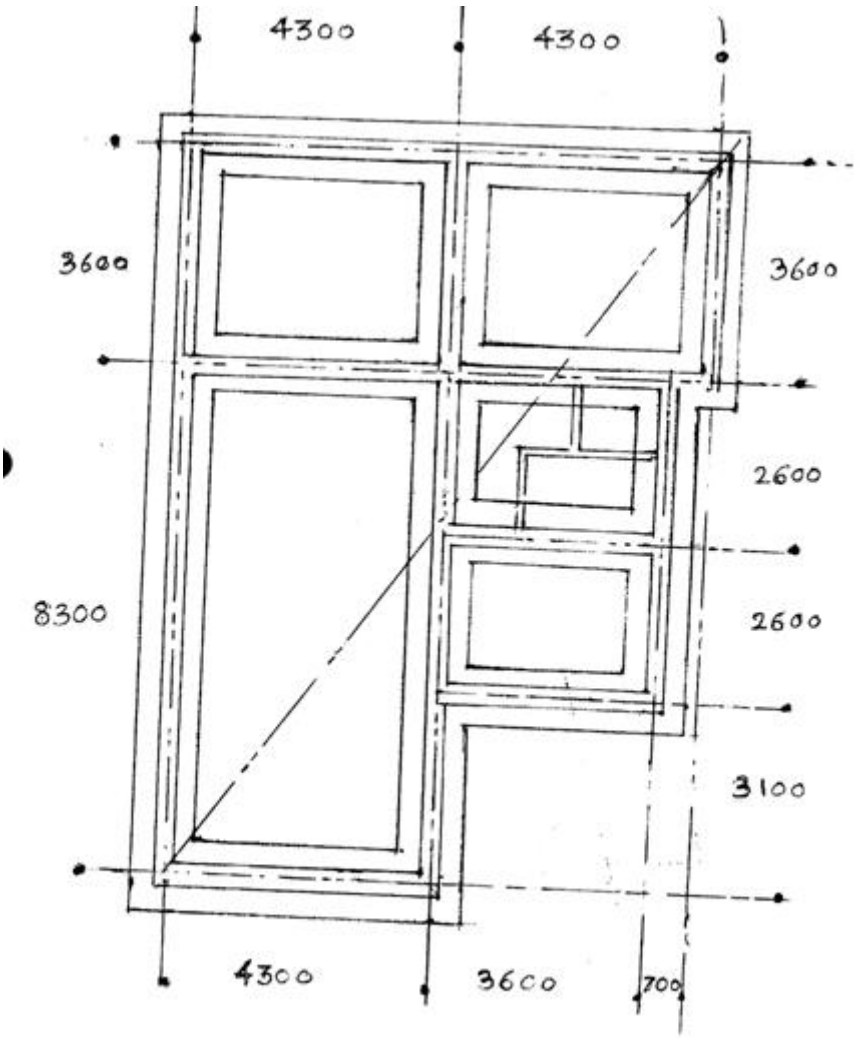
Not to the scale.

All dimensions are in m

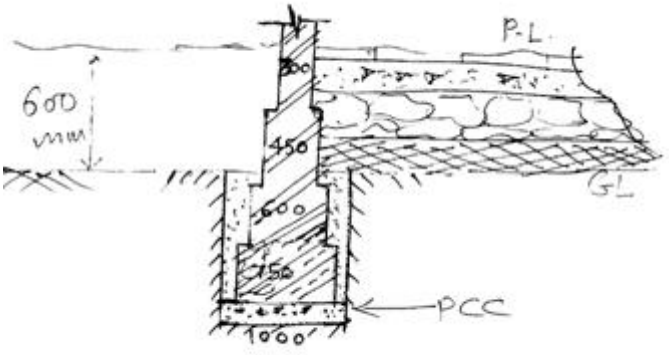
Detailed Plan: 12 marks, Front Elevation: 8 marks, Section along A-B: 10 marks,

North line: 02 marks

Q5 a)



Foundation Plan

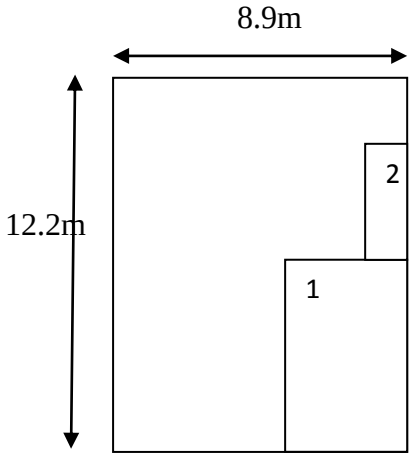


Drawing and neatness: 06 marks, Dimensions: 02 marks

Q5.b) Schedule of doors and windows should be as per the drawing and written in the following table format. (04)

Sr.No	Symbol	Size	No	Type	Remark

Area statement- area of block= 12.2x8.9=108.58 m^2



Deduct area 1= 3.1x4.3=13.33m^2

2 = 5.2x0.7=3.64m^2

Total: 16.97m^2

Built up area = 91.61m^2

Assume plot size= 15x25m

Plot area=375m^2

FSI=91.61/375=0.24

(04)

Q.5. c) i) **Measured Drawing** – the drawing in which actual measurements of existing building are taken and the drawings like plan, elevation sections etc. are prepared.(02)

Purpose of drawing-1) in case of dispute of property.

Valuation, tax calculation, estimation, modifications etc.

Data drawing –the drawing in which the data is given to prepare different views like plan, elevation, section of a proposed building is called as data drawing.
(02)

ii) Purpose of writing construction notes-

1) Type and specification of materials which is to be used is mentioned in notes.

2) Any special work or treatment to be given is mentioned in construction notes.

3) The details of construction components proposed to be used but not seen in drawing must be mentioned in construction notes. (04)

d) Define- correct definition (4 x 2 = 8)

Built-up area---It is the builtup covered area of building measured at floor level of any storey. It is also called as plinth area.

Plot area- it is the area of piece of land owned by a person on which construction is proposed.

Carpet area-it is the usable floor area at any floor level excluding sanitary accommodation verandah, passages, staircase, garage etc.

OR it is the actual livable area.

Floor area- It is the usable covered area of building at any floor level or plinth area minus area of walls .

e) Service units for canteen for 200 people- with min. size (08)

Kitchen: 20 m^2

Pantry: 24 m^2

Store: 16 m^2

Dining hall: 2 to 3 m^2/head or 20 m x 9 m size

Preparation: 5 m x 4.5 m

Cook room: 3 m x 4 m

Wash room: 5 m x 3 m

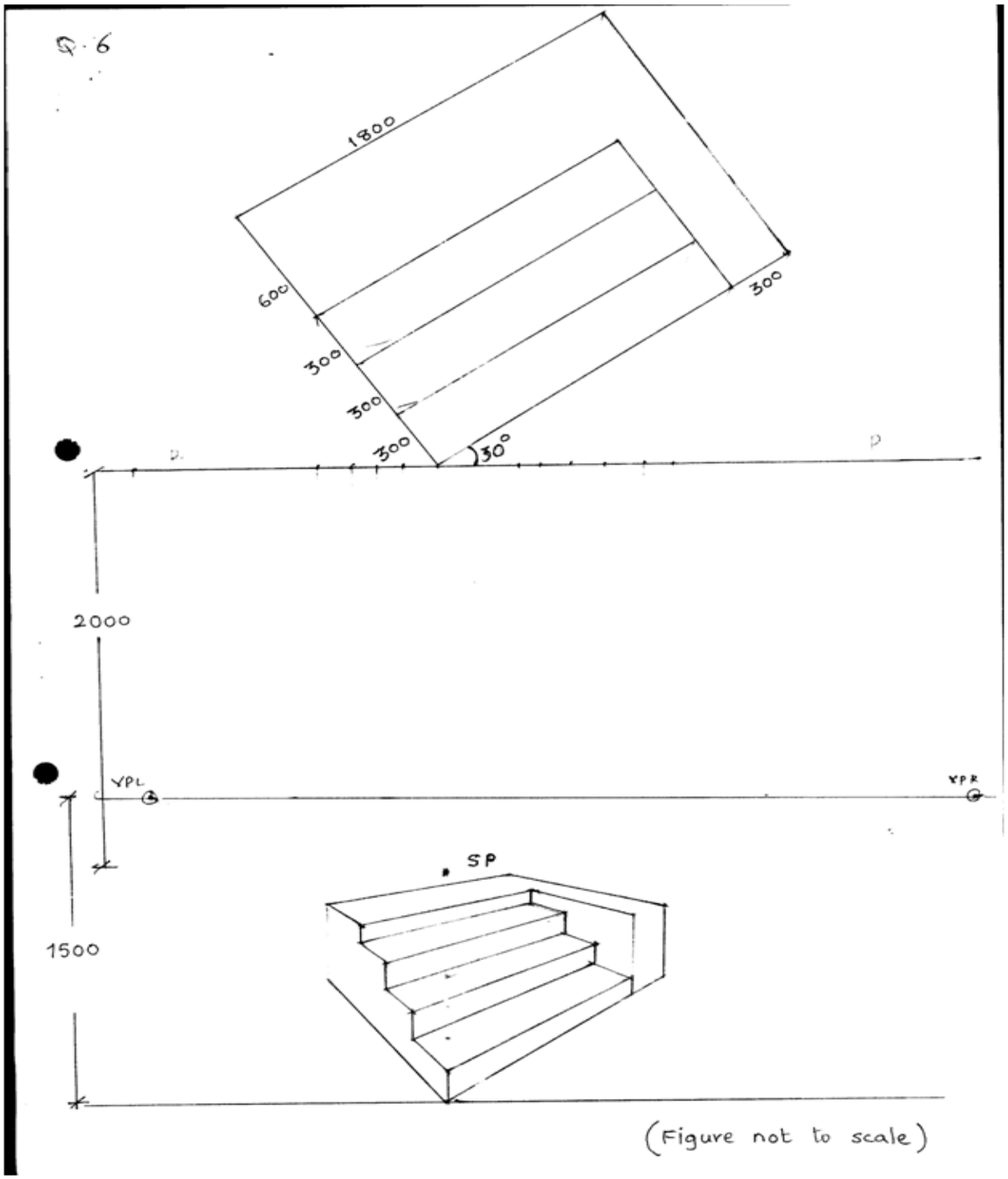
Toilets: 2 nos.

Service Entry: As per requirement

Entrance hall: As per requirement

Q.6 (12)

Q.6



(Figure not to scale)