

THIRD SEMESTER DIPLOMA EXAMINATION IN ENGINEERING/
TECHNOLOGY — MARCH, 2015

BUILDING PLANNING AND DRAWING

(Common for CE, QS, EN and WR)

[Time : 3 hours

(Maximum marks : 100)

- [Note:— 1. Question No. II is compulsory.
2. Missing data can be suitably assumed.
3. Drawings shall be neat and fully dimensioned.
4. A2 size drawing sheet to be supplied.]

PART—A

(Maximum marks : 15)

Marks

I Answer the following questions in one or two sentences. Each question carries 1½ marks.

1. What do you understand by the term garage ?
2. Define porch.
3. Specify the size of off-street parking for a motor car as per KMBR.
4. What are Ramps ?
5. Write the maximum travel distance to emergency stair cases as per KMBR.
6. Write the requirements regarding size for bathrooms and latrine.
7. Differentiate between common rafter and jack rafter.
8. Give the conditions regarding setback for buildings in small plot.
9. Write down the minimum horizontal and vertical clearance for overhead electrical lines of :
 - (i) Low and medium voltage
 - (ii) High voltage up to 33000V
10. How the carpet area of a building is calculated ?

(10×1½=15)

PART—B

(Maximum marks : 85)

- II (a) Prepare the line plan for a residential building to suit for a plot of $19.5\text{ m} \times 20\text{ m}$ size based on the rules and regulations of KMBR. The total built up area of the building is 170 m^2 and should contain the following facilities.

- (i) Drawing and dining
- (ii) Bed rooms-2 nos. with attached toilets
- (iii) Kitchen and pantry
- (iv) Verandah
- (v) Garage, etc.

A road of 6 m width passing along the 20m side of the plot, which is in the north-south direction.

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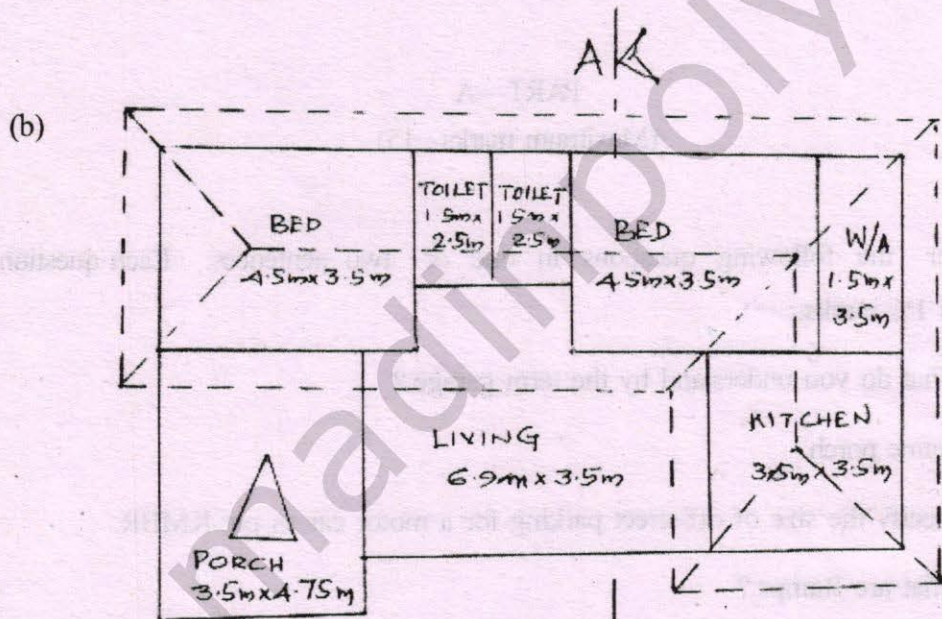


fig no. (1)

The line plan gives the arrangement of room of a residential building. Prepare fully determined :

- (i) plan
- (ii) section along AA.

Details :

- (i) Bed concrete for foundation, PCC, 1:4:8 — $70\text{ cm} \times 15\text{ cm}$
- (ii) RRM in cement mortar 1:8 for foundation — $60\text{ cm} \times 60\text{ cm}$
RRM in cement mortar 1:8 for basement — $45\text{ cm} \times 45\text{ cm}$

- (iii) Super structure, 1 brick wall in cement mortar 1:6, 360 cm height for tiled portion and 300 cm for terraced portion.
- (iv) RCC M 20 grade, 12 cm thick.
- (v) Details of tiled roofing.

Roofing with MP tiles,

Ridge — 5 cm × 15 cm.

Common rafter — 7 cm × 10 cm.

Collar — 7 cm × 10 cm.

Wall plates — 10 cm × 7 cm.

Eave board — 1.5 cm × 12 cm.

All other data such as position and size of doors, windows, ventilators etc. can suitably be assumed.

(15+15=30)

- III Draw to a suitable scale the elevation and sectional plan of a half glazed door with the given details :

Size of door — 100 cm × 200 cm. 2 leaves

Door frame — 9 cm × 7 cm.

Style — 9.5 cm × 3.5 cm.

Top rail — 9.5 cm × 3.5 cm.

Sash bar — 3.5 cm × 3.5 cm.

Lock rail — 19.5 cm × 3.5 cm.

Bottom rail — 19.5 cm × 3.5 cm.

Panel — 1.6 cm thick

Glass panel — 4 mm thick.

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OR

- IV Draw the elevation of a double collar roof showing all details :

Wall thickness — 30 cm

Clear span — 5 m

Collar — 4 cm × 12.5 cm.

Ridge — 8 cm × 20 cm.

Rafter — 5 cm × 12.5 cm.

Eave projection — 75 cm.

Wall plates — 15 cm × 10 cm.

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- V Draw the half sectional elevation along the central line of the road way of a slab culvert designed for a highway across a stream with the following details :

Clear span — 2.75m.

Abutment in PCC 1:3:6, trapezoidal section, water face vertical.

Top width 60cm, bottom width 120cm, Foundation PCC 1:3:6, 180cm wide and 40cm deep.

Square return walls 400cm length from the earth face of abutment top.

Waterway lined 20cm thick, stone pitching.

Bed slab 30cm thick RCC, M20 grade, with bearing of 40cm on abutments.

Provide parapets and railing etc. suitably.

Top level of culvert slab, +100.00cm.

Top level of stone pitching — 97.24cm.

RL of base of foundation of abutment — +95.85m.

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OR

- VI Prepare a service plan showing the house drainage system, connection to the main sewage line, position of W/C, sink, W/B, etc. should be clearly indicated in the line plan given in figure No. (1).

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