

**DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/MANAGEMENT/  
COMMERCIAL PRACTICE, NOVEMBER - 2023**

**BUILDING PLANNING AND DRAWING**

[Maximum marks: 100]

[Time: 3 Hours]

[Note:- 1. Question number II is compulsory.

2. Missing data may be suitably assumed.
3. Drawing shall be neat and fully dimensioned.
4. A2 size drawing sheet to be supplied.]

**PART – A**

**Maximum marks: 15**

**I** (Answer *all* the questions in one or two sentences. Each question carries **1.5** marks)

1. Define Floor Area Ratio.
2. Draw a typical layout of quarter turn stair in plan.
3. Define nosing.
4. Describe mezzanine floor.
5. List out the documents to be submitted for a building permit.
6. List any three types of building which comes under GROUP D as per KMBR.
7. Define setback line.
8. Define service plan.
9. Define soil pipe.
10. Define Orientation of a building.

**(10 x 1.5 = 15)**

**PART – B**

**Maximum marks: 85**

**II.** (a) Prepare the line plan for a residential building to suit for a plot of 26m x 24m size, according to NBC and KMBR requirements. A road of 5m width abuts the 26m side. The total built up area of the building should not to exceed 200m<sup>2</sup>. It should satisfy the following requirements.

Sit out  
 Car porch  
 2 nos. bed rooms with attached bath  
 Dining and drawing  
 Kitchen and work area

(25 marks)

(b) The line plan shows the layout of residential building. Draw the fully dimensioned (Figure 1)

- (i) Plan (15 marks)
- (ii) Section along A-A (15 marks)

Details:

- (i) Bed concrete for foundation, PCC 1:5:10 – 80cm x 20cm.
- (ii) RR masonry in C.M 1:6 for foundation – 60cm x 50cm.
- (iii) Basement RR masonry in C.M 1:6 – 45cm x 50cm.
- (iv) Superstructure 20cm brick masonry in CM 1:6.
- (v) RCC roof slab 10cm thick with a room height 3.1m. Provide suitable Lintels, Sunshade, Doors, Windows and Ventilators where ever necessary. Missing data can be assumed suitably.

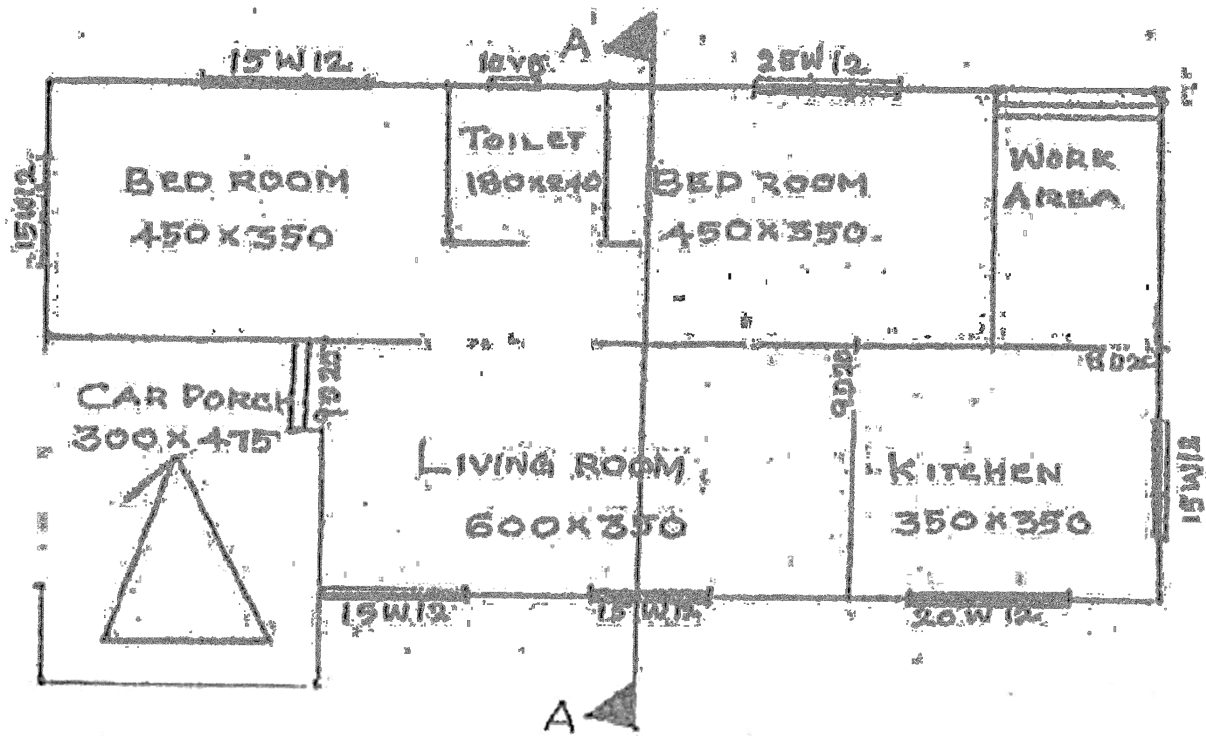


Figure 1 (All dimensions area in cm)

**III.** Draw to a suitable scale, the elevation of a closed couple roof of the following details.

Wall thickness – 30cm

Rafter – 5 x 12.5cm

Clear span – 500cm

Tie joist – 4 x 12.5cm

Ridge piece – 8 x 20cm

Eave board – 3 x 15cm

Eave projection – 60cm

Wall plate – 15 x 10cm

**(15 marks)**

**OR**

**IV.** Draw the foundation details for steps and wall. Given,

Brick wall, 20cm thick in CM 1:4

Basement in RR masonry, CM 1:4 – 40cm x 60cm

Foundation in RR masonry, CM 1:4 – 50cm x 60cm

PCC, 1:4:8 – 80cm x 20cm

Steps in brick masonry: rise – 15cm, tread – 30cm, PCC – 10cm thick

Floor concrete, 10cm thick, Floor finish 2cm thick

**(15 marks)**

**V.** Draw the half sectional elevation along the centre line of the road of a slab culvert across a stream with the following details.

Roadway – 4m

Clear span – 1.5m

Bed level of the stream - +10.00m

Foundation level - +9.4m

Road level - +11.30m

Foundation PCC M10 grade 0.3m thickness, the thickness of abutment 0.40m throughout the height, thickness of slab 0.20m, the thickness of wearing coat 0.10m. The returns are square projecting 1.2m from the earth face of the abutment. The height of parapet above slab 0.80m, coping 0.10m thick with 80mm projections. Flooring consists of stone revetment 0.30mm thick. Provide adequate kerb.

**(15 marks)**

OR

VI. Draw the electrical service plan and denote the symbol for the fittings (Figure 2)

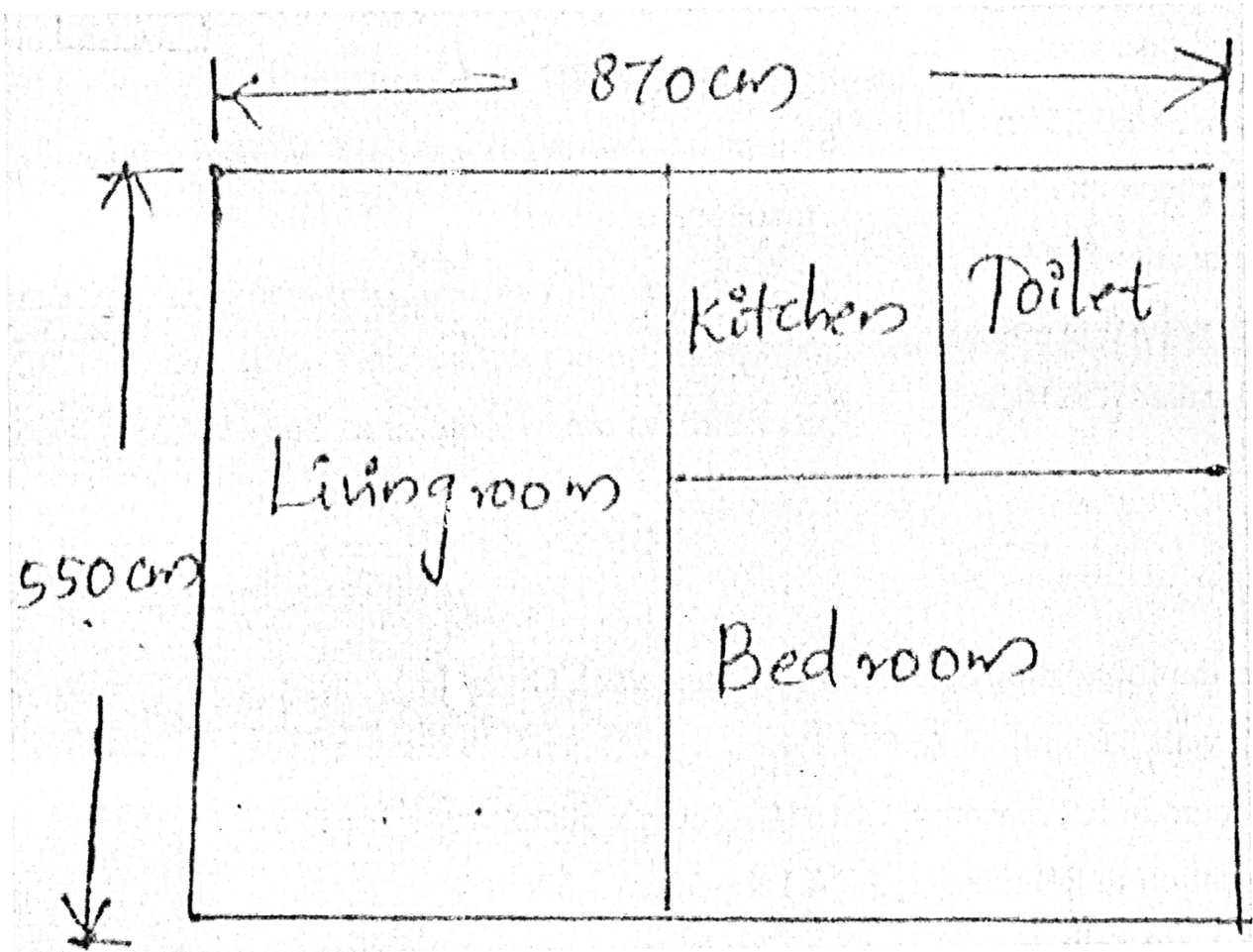


Figure 2

(15 marks)