1570

Code : 20AR51I

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V Semester Diploma Examination, June/July-2023

ARCHITECTURAL DESIGN AND WORKING DRAWING

Time : 3 Hours] **[Max. Marks : 100**

Instructions : (i) Answer any **one** full question from each section.
(ii) **One** full question carries **20** marks.
(iii) All the drawings/sketches should be drawn in answer booklet only.

SECTION – I

1. (a) Prepare a sketch of London aquatic centre and explain its architectural characteristics. **5 + 5 = 10**

   (b) Analyze the design principles of Frank LLoyd wright with an example.

   1 × 10 = 10

2. (a) Classify the architectural features of Farnsworth house with the help of sketches. **5 + 5 = 10**

   (b) Identify the salient features of IIM Bangalore with sketch. **5 + 5 = 10**

SECTION – II

3. (a) Choose an example and explain the following with sketch : **2 × 5 = 10**
   (i) Plot Area
   (ii) Built-up Area
   (iii) Set Back
   (iv) Carpet Area
   (v) Floor Area Ratio

   (b) Identify the features of light plane with sketch. **5 + 5 = 10**

4. (a) Analyze the importance of zoning regulations. **1 × 10 = 10**
   (b) Summarize the features of active and passive recreation with example. **5 + 5 = 10**

SECTION – III

5. (a) Distinguish between hardscape and softscape. **5 + 5 = 10**
   (b) Analyze the necessity of landscape design. **10 × 1 = 10**

6. (a) Identify the standard dimensions for two wheeler and four wheeler parking with turning radius. Prepare sketch of a parking layout. **2 + 2 + 6 = 10**
   (b) Sketch and explain any five elements used in Landscape design. **2 × 5 = 10**

SECTION – IV

7. Draw sectional plan and elevation of a RCC singly reinforced T-Beam of a hall of size 5 m × 5 m. **7 + 7 + 6 = 20**

Following are the details of reinforcement

- Span of the beam is 5m
- Overall depth of beam 600 mm
- Rib width of beam 300 mm
- End support 230 mm thick BBM wall
- Longitudinal reinforcement of beam are 3 no's of 20 mm in bottom row and 3 no's of 20 mm in the top row.
- Out of 6 longitudinal bars, 3 bars are bent up at 45 degree at a distance of 1500 mm from the face of the support.
- 2 Hanger bars of 12 mm dia.
- 8 mm dia. 2 legged stirrups at 100 mm c/c

Assume missing data.

Prepare bar bending schedule and calculate the quality of steel required.

8. The design details of one way roof slab are as follows : **7 + 7 + 6 = 20**

- Overall depth – 0.15 m
- Width of bearing – 0.23 m
- Size of the room – 3 m × 4 m
- Reinforcement details –

The longitudinal main reinforcement consists of 10 mm dia. bars at 0.15 m c/c out of which alternate bars are bent up at 45° at a distance of 0.6 m from the face of both the supports. The distribution bars are of 8 mm dia. provided at 0.2 m c/c distance.

Draw the following :

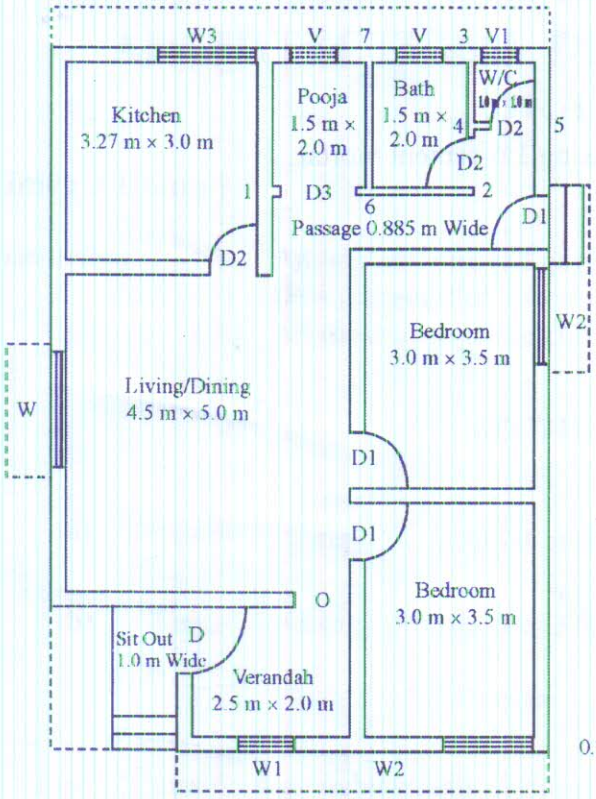
- Plan showing the arrangement of reinforcement.
- Longitudinal section at centre of the span.

Assume missing data.

Prepare bar bending schedule and calculate the quantity of steel required.

SECTION – V

9. Prepare detailed estimate of quantities and abstract estimate along with brief specification for the following items of work for a residential building whose plan and sectional details are given in Figure. 1 : **10 + 10 = 20**



INDEX OF OPENINGS

DOORS

D 1.0 m × 2.1 m
D1 0.9 m × 2.1 m
D2 0.75 m × 2.1 m
D3 1.2 m × 2.1 m

OPENING O 1.0 m × 2.1 m

WINDOWS

W 1.8 m × 1.5 m
W1 0.9 m × 1.5 m
W2 1.5 m × 1.5 m
W3 1.5 m × 0.9 m

VENTILATORS

V 0.75 m × 0.45 m
V1 0.6 m × 0.45 m

NOTE: (1) All walls are of 0.23 thick except walls represented by 12, 23, 45 and 67 which are 0.115 thick.
(2) Missing data may be suitably assumed and clearly stated.

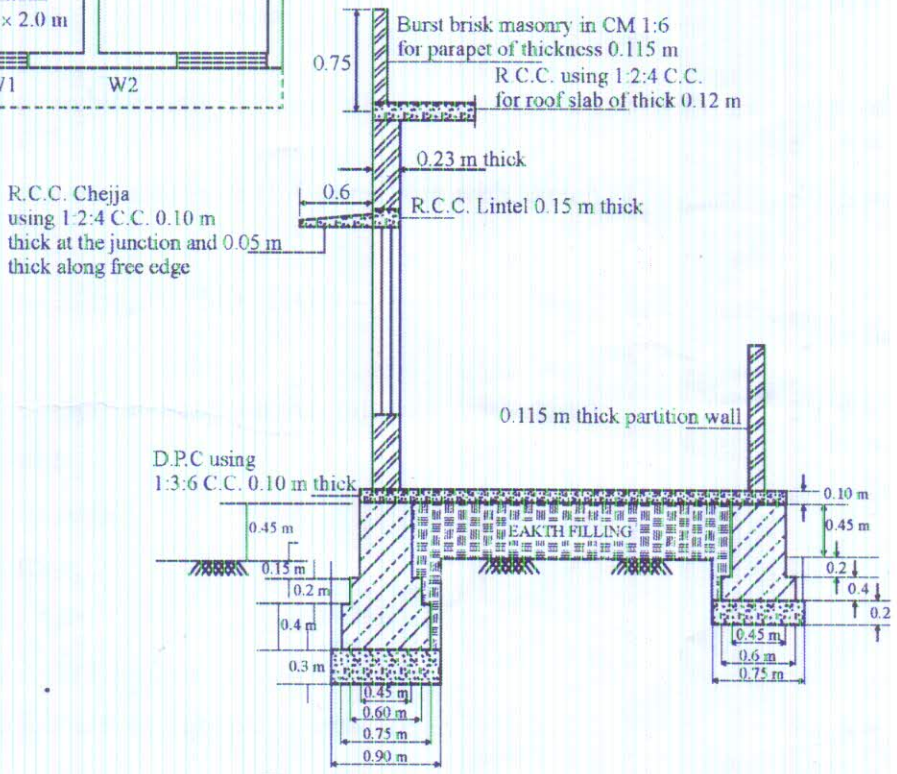


Figure 1

[Turn over

(a) Bed concrete using 1:4:8 CC for foundation.

(b) Interior wall plastering using CM 1:6.

10. Analyze from first principle the rate for following items of work : **10 + 10 = 20**

(a) Ashlar masonry in super structure.
(Sample quantity 10 cubic meters)

(b) First class brick work in super structure using 1:6 cement mortar.
(Sample quantity 10 cubic meters)
