B.M.S. College of Engineering, Bengaluru-560019

Autonomous Institute Affiliated to VTU

February / March 2023 Semester End Main Examinations

Programme: B.E.   Semester: VII
Branch: Civil Engineering   Duration: 3 hrs.
Course Code: 21CV7PCCSE   Max Marks: 100
Course: Contracts, Specification and Estimation   Date: 20.02.2023

Instructions: 1. Answer any FIVE full questions, choosing one full question from each unit.
2. Missing data, if any, may be suitably assumed.

UNIT - I

1 a) Discuss the factors to be considered while preparing detailed estimate. **04**

 b) Discuss various methods of taking out quantities. **08**

 c) Prepare a rough-cost estimate of a residential building project with a total plinth area of the building - 200 Sqm. Given that: **08**
Plinth Area Rate = ₹ 14,000.00 / Sqm
Extra for special architectural treatment = 2%
Extra for water supply and sanitary installations = 9%
Extra for internal installations = 10%
Extra for Electric & gas services = 8%
Contingencies 2.5%
Supervision charges = 9%
Design charges = 2.5%

UNIT - II

2 The accompanying **figure-1** shows the details of a residential building. Estimate the quantities by centre line method and cost of the following items of works. **20**

   a) Centre to centre lengths and number of junctions.
   b) Earthwork excavation for foundation in hard soil @ Rs. 500.00/Cum
   c) PCC Bed concrete in CC (1:4:8) for foundation @ Rs. 5500.00/Cum
   d) Burnt Brick masonry above plinth with CM 1:6 @ Rs. 7500.00/Cum

OR

3 a) Prepare a detailed estimate of a RCC slab of 3m clear span and 6m long from the given **figure-2**. RCC work including centering and shuttering to cost @ Rs. 5500/Cum and steel reinforcement in detail @ Rs. 80/kg shall be calculated separately. **15**

 b) Discuss briefly the long wall and short wall method of building estimation. **05**

UNIT - III

4 a) List various methods of earthwork estimation. Discuss the mid sectional area method with tabular column. **08**

b) Estimate the cost of earthwork for a portion of the road from the following data. The formation width of the road is 12m. Side slopes are 2:1 in filling and 1.5:1 in cutting. Compute volume by Prismodal formula method. **12**

Distance	200	250	300	350	400	450	500	550
G. L.	478.2	480.1	480.6	482.0	482.9	483.4	484.0	484.5
F. L.	← ———————Upgradient of 1 in 75 ———————→485							

UNIT - IV

5 a) Discuss detailed specifications required for brickwork (Class-1) in CM 1:6. **10**

b) Workout from first principles, the rate analysis for Coursed Rubble Stone Masonry in cement mortar 1:6. **10**

OR

6 a) Discuss the necessity of specifications and its types. **08**

b) Workout from first principles, the rate analysis for mosaic tile flooring over the base course of cement concrete 1:2:4 of 10cm thick with dry CM cushion of 5cm thick in CM 1:3. **12**

UNIT - V

7 a) Discuss the objectives and elements of contract. **06**

b) List different types of engineering contract and discuss any three. **08**

c) Government of Karnataka intends to invite a tender from eligible contractors for construction of a flyover at one of the junctions in Bengaluru as per the tender documents. Mention the tender documents which are required for evaluating the bidders and to award the work. **06**
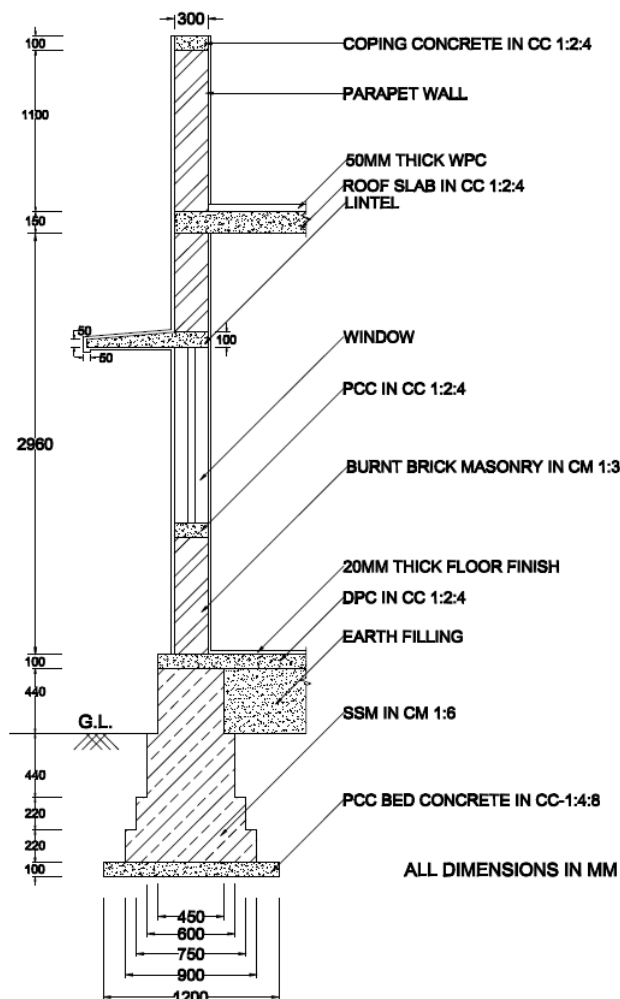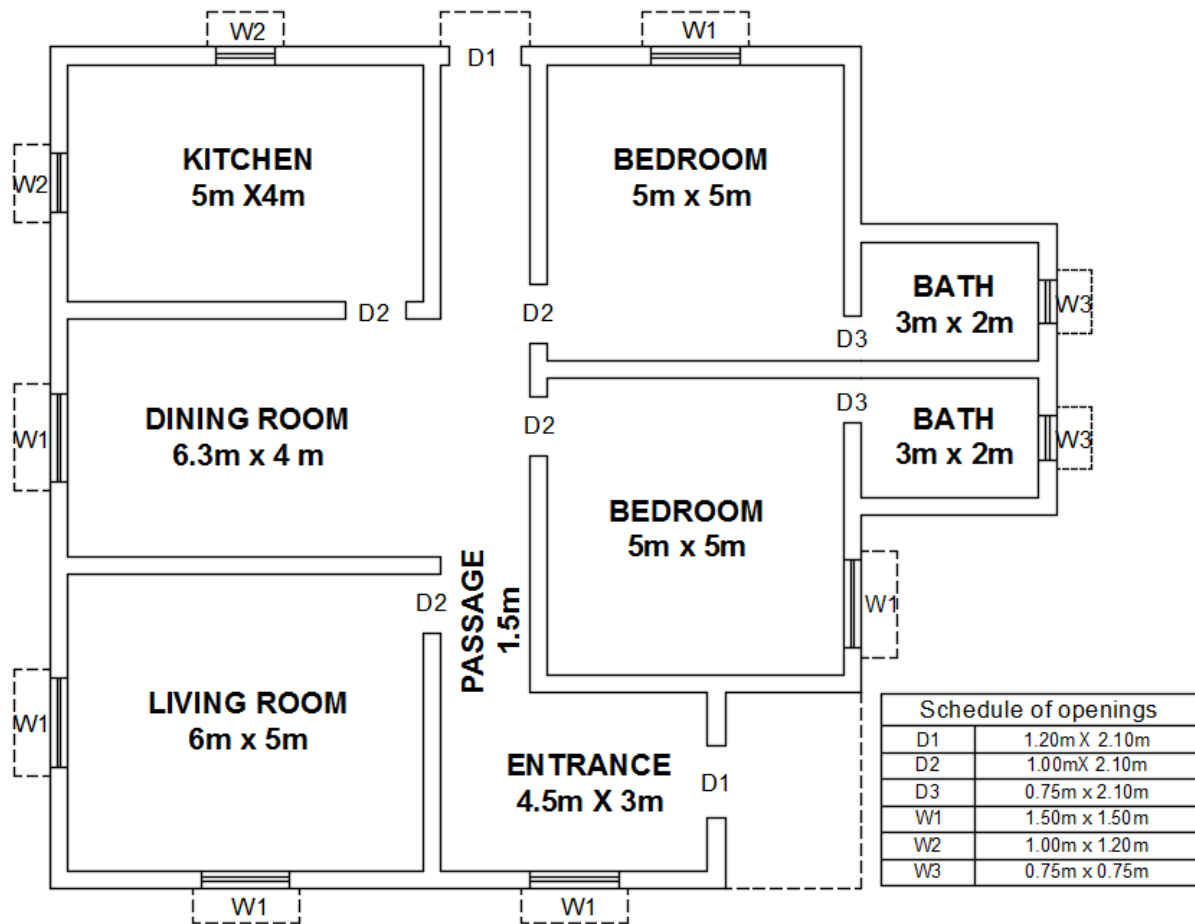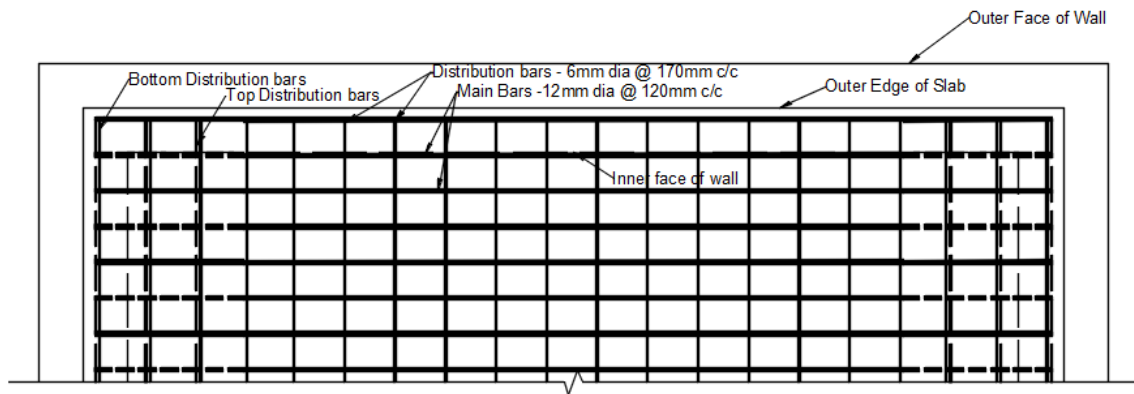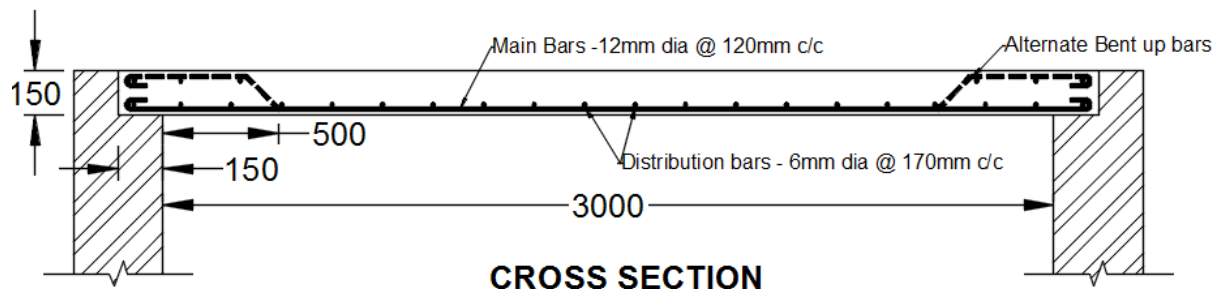
Schedule of openings

D1	1.20m X 2.10m
D2	1.00mX 2.10m
D3	0.75m x 2.10m
W1	1.50m x 1.50m
W2	1.00m x 1.20m
W3	0.75m x 0.75m

Floor plan labels:

- KITCHEN 5m X4m
- BEDROOM 5m x 5m
- BATH 3m x 2m
- DINING ROOM 6.3m x 4 m
- BATH 3m x 2m
- BEDROOM 5m x 5m
- PASSAGE 1.5m
- LIVING ROOM 6m x 5m
- ENTRANCE 4.5m X 3m

Section labels:

- COPING CONCRETE IN CC 1:2:4
- PARAPET WALL
- 50MM THICK WPC
- ROOF SLAB IN CC 1:2:4
- LINTEL
- WINDOW
- PCC IN CC 1:2:4
- BURNT BRICK MASONRY IN CM 1:3
- 20MM THICK FLOOR FINISH
- DPC IN CC 1:2:4
- EARTH FILLING
- SSM IN CM 1:6
- PCC BED CONCRETE IN CC-1:4:8
- ALL DIMENSIONS IN MM
- G.L.

Section dimensions: 300, 100, 1100, 150, 50, 100, 50, 2960, 100, 440, 440, 220, 220, 100, 450, 600, 750, 900, 1200

Figure – 1

CROSS SECTION

PART PLAN SHOWING ARRANGEMENT OF REINFORCEMENT BARS

Figure – 2

******