Code No: 157BM **R18**

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Tech IV Year I Semester Examinations, December-2023/January-2024
ESTIMATION, COSTING AND PROJECT MANAGEMENT
(Civil Engineering)

Time: 3 Hours **Max. Marks: 75**

Note: This question paper contains three parts A, B and C.
i) Part – A: Answer 1 out of 2 questions.
ii) Part – B: Answer 1 out of 2 questions.
iii) Part – C: Answer any 3 out of 5 questions.
(Assume Suitable data, if necessary)

PART - A

(30 Marks)

1. Estimate the quantities for the Figure.1 given below for the following data:
a) Sand required in plinth filling
b) Brick work in CM (1:6) in foundation and superstructure
c) Damp Proof Course of 2.5 cm
d) 12 mm thick plastering in walls with 1:1:6 cement concrete and local sand.
e) R.C.C work 1:2:4 in lintels and sunshades [4+14+4+4+4]

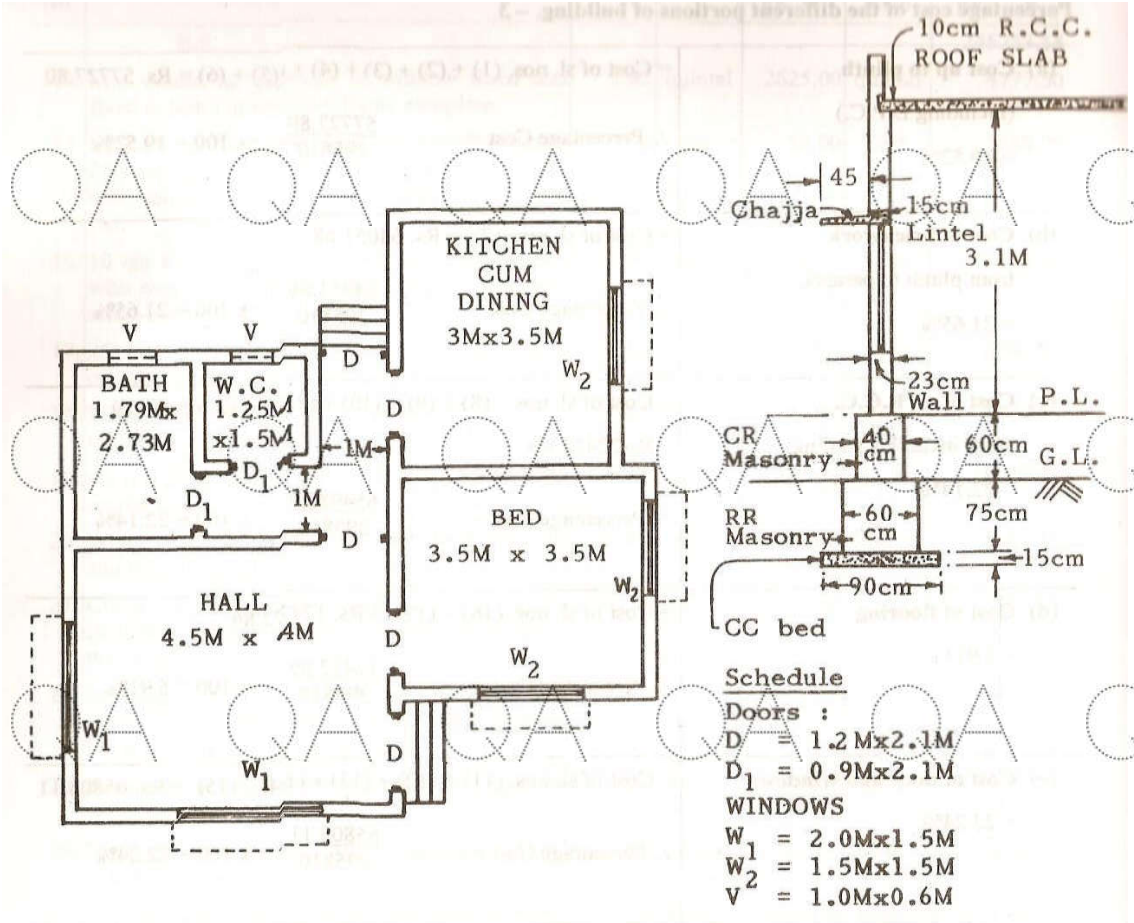
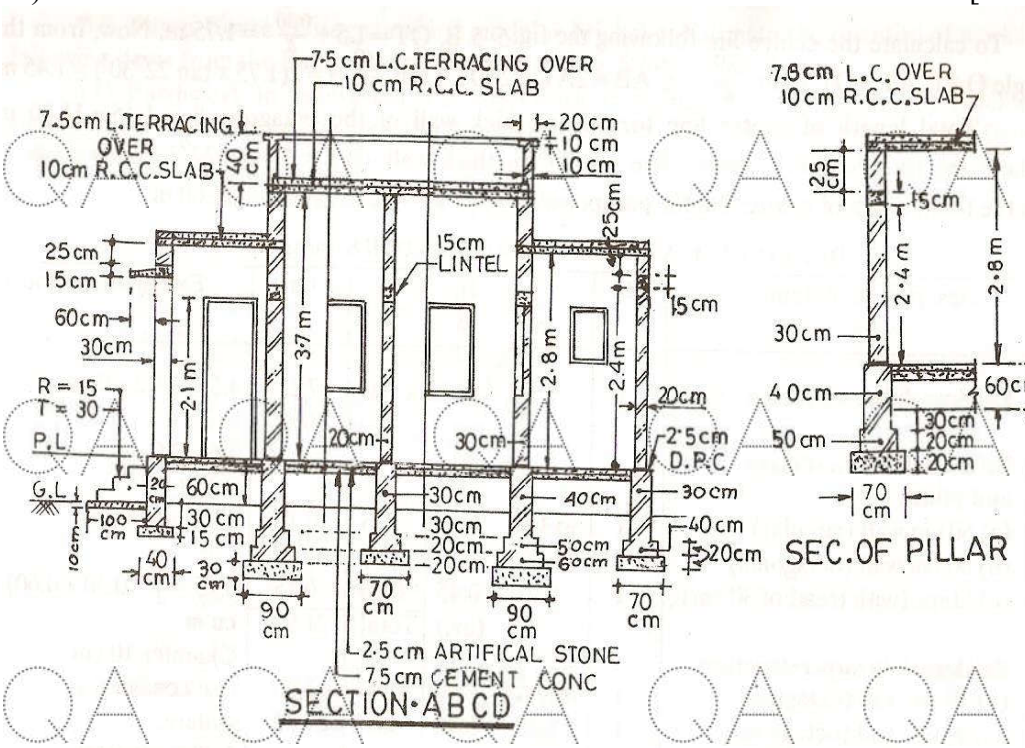
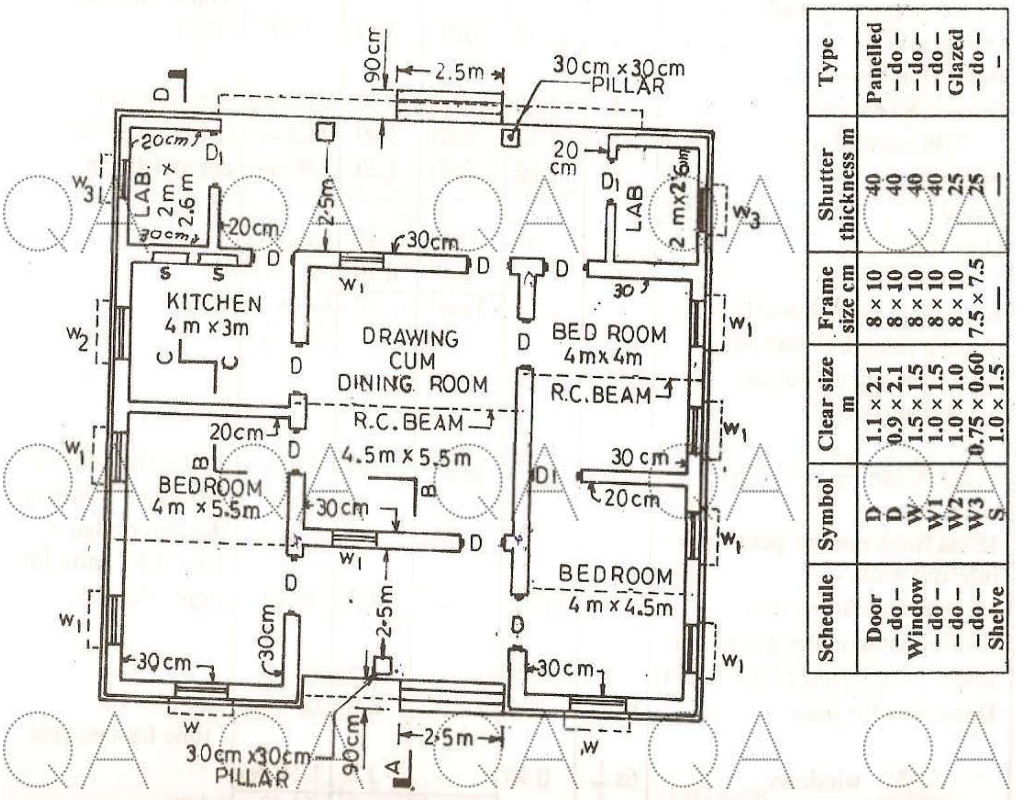


Figure 1

OR

2. Estimate the quantities for the Figure.2 given below for the following data:
a) Sand required in plinth filling.
b) Brick work in CM (1:6) in foundation and superstructure
c) Damp Proof Course of 2.5 cm
d) Concrete for flooring
e) R.C.C work 1:2:4 in lintels and sunshades. [4+14+4+4+4]





Schedule	Symbol	Clear size m	Frame size cm	Shutter thickness m	Type
Door	D	1.1 × 2.1	8 × 10	40	Panelled
– do –	D	0.9 × 2.1	8 × 10	40	– do –
Window	W	1.5 × 1.5	8 × 10	40	– do –
– do –	W1	1.0 × 1.5	8 × 10	40	– do –
– do –	W2	1.0 × 1.0	8 × 10	25	Glazed
– do –	W3	0.75 × 0.60	7.5 × 7.5	25	– do –
Shelve	S	1.0 × 1.5	—	—	—

Figure 2

PART – B

(1 ×15 = 15 Marks)

3. Estimate the quantity of earthwork of a road from chainage 20 m to 26 m from the data given below. The formation level at 20 m chainage is 88.500 m and the road has rising gradient of 1 in 100. The formation width of the road is 10 m, side slopes 1:1 in cutting and 2:1 in banking. [15]

Chainage(m)	20	21	22	23	24	25	26
RL of Ground (m)	88.100	87.740	87.800	88.200	90.750	90.200	89.9800

OR

4. Workout quantity of 6 mm, 10mm, and 16mm diameter reinforcement for a rectangular beam of size 250 mm × 500 mm. The beam is reinforced with 2 Nos-10mm diameter at top, 2Nos —16mm diameter at bottom, 2 Nos.-16mm diameter bent up 6mm diameter two legged stirrups are provided at 150 mm c/c throughout the length. Length of beam is 4.5. Assume suitable cover. [15]

PART-C

(3 × 10 = 30 Marks)

5.a) Prepare the analysis of rate for Lime Concrete in foundation with 40mm brick ballast per cu.m. Assume the required data.

b) Prepare the analysis of rate of R.C.C. work 1:1.5:3 for column of size 250mm × 350 mm Assume the required data. [5+5]

6. Draft a model contract document for Construction Contract Agreement. [10]

7. A Owner occupied property is required to be valued for the wealth tax purpose of land and building. The following particulars are available. Evaluate the present valve of the property.
Valve of the land = Rs. 4,00,000.00
Cost of the building at present = Rs.10,00,000
Age of the building = 40 years
Estimate cost of repair = Rs. 50,000.00
Depreciation to be allowed for the building = 0.75% per annum. [10]

8. Construct a PERT network for the data given below and find out
a) The earliest possible time b) Latest allowable time
c) Slack values d) Critical path. [3+2+3+2]

Activity	Most optimistic time	Most likely time	Most pessimistic time
(1 – 2)	1	2	3
(2 – 3)	1	2	3
(2 – 4)	1	3	5
(3 – 5)	3	4	5
(4 – 5)	2	5	4
(4 – 6)	3	5	7
(5 – 7)	4	5	6
(6 – 7)	6	7	8
(7 – 8)	2	4	6
(7 – 9)	4	6	8
(8 – 10)	1	2	3
(9 – 10)	3	5	7

9.a) Outline the procedure to work out the value of a property by rental method of valuation.

b) Discuss about the various requirements to prepare analysis of rates for sanitary and water supply works.

c) What are the rules for drawing network diagram? [3+4+3]

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