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Reg. No: ☐☐☐☐☐☐☐☐☐☐

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)
B.Tech III Year I Semester Supplementary Examinations August-2021
ESTIMATION, COSTING AND VALUATION
(Civil Engineering)

Time: 3 hours   Max. Marks: 60

PART-A
(Answer all the Questions 5 x 2 = 10 Marks)

1	a	Find the centre length of a garage of 5 m x 8 m (outer dimensions) having 20 cm brick wall.	2M
	b	Define Lead and Lif.	2M
	c	Draw a semi-circular hook and right angle bend at end anchorage of reinforcement.	2M
	d	Define rate analysis. What is the purpose of rate analysis?	2M
	e	Write brief note on types of specifications.	2M

PART-B
(Answer all Five Units 5 x 10 = 50 Marks)

UNIT-I

2   For the residential building shown in Fig.1, estimate the following: (i) Earthwork in   **10M**
    exaction (ii) C.R. masonry in C.M (1:6) in the basement (iii) Laterite stone masonry in
    C.M. (1:5) in the superstructure (iv) R.C.C (1:2:4) in chajja, lintel and roof slab
    (v) Plastering wall surface in C.M (1:3) 12 mm thick
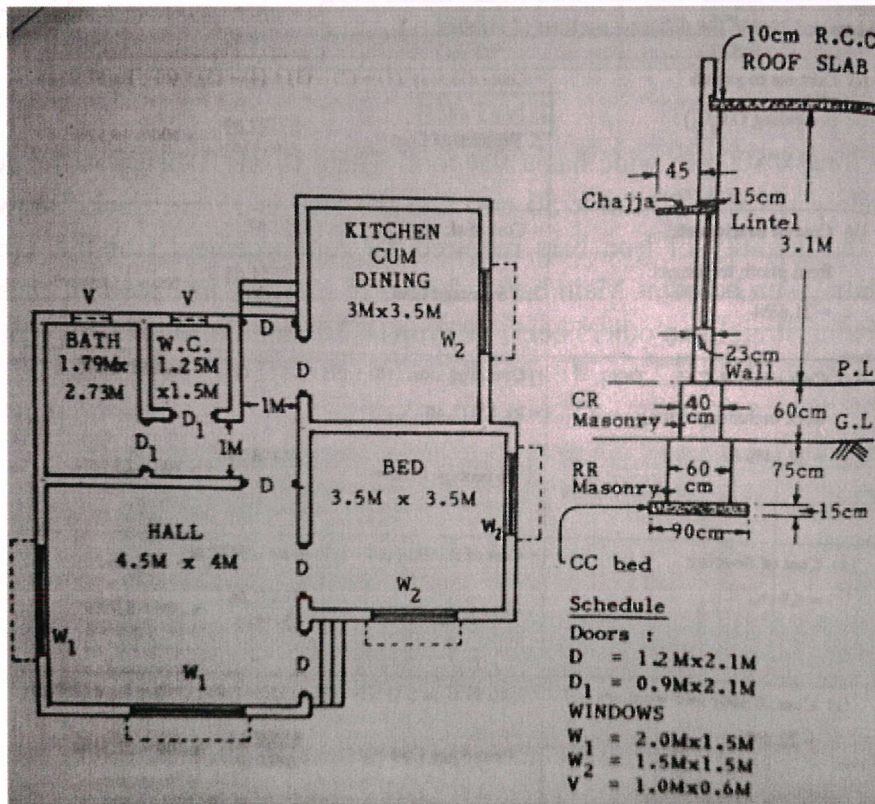
PLAN & SECTIONAL VIEW

OR

3 Write brief note on following main items of work (i) Earthwork (ii) Concrete in foundation (iii) Damp proof course (iv) Masonry (e) Plastering   **10M**

UNIT-II

4 A road portion of 200 m length is having heights 1.00 m and 1.60 m in banking at the two ends. The road portion in an uniform ground with a formation width 10 m and side slopes being 2:1 (horizontal: vertical). Assume that there is no transverse slope. (i) Calculate the quantity of earthwork using Mid Sectional Area Method, Mean Sectional Area Method and Prismoidal Formula Method. (iii) Compare the two methods with Prismoidal Formula Method and report the difference of quantities in percentage. (iii) If the side slopes are to be provided with a stone pitching of 15 cm thick, calculate the cost of pitching at the rate of Rs.220/- per cu.m   **10M**

OR

5 Estimate the cost of earthwork for a portion of road for 400 m length from the following data:- Formation width of the road is 10 m. Side slopes are 2:1 in banking 1.5:1 in cutting.   **10M**

Station	Distance in m	RL of ground in m	RL of formation
25	1000	51.00	
26	1040	50.90	
27	1080	50.50	
28	1120	50.80	RL of formation
29	1160	50.60	is 52.00.
30	1200	50.70	Downward
31	1240	51.20	gradient of 1in
32	1280	51.40	200
33	1320	51.30	
34	1360	51.00	
35	1400	50.60	

UNIT-III

6 A room 600 cm long x 500 cm wide has a flat roof. There is one T-beam in the centre (cross section below the slab 30 cm x 50 cm) and the slab is 15 cm thick. Shown in Fig.2. Estimate the quantity of iron bars required for reinforcement (for the T-beam only) from the data given below :- Main bars – 8 nos. 25 mm dia. in 2 rows of each (all 4 in the bottom being straight an others bent) Stirrups – 10 mm dia. and 15 cm centre to centre throughout Anchor bar – 2 nos. 16 mm dia   **10M**
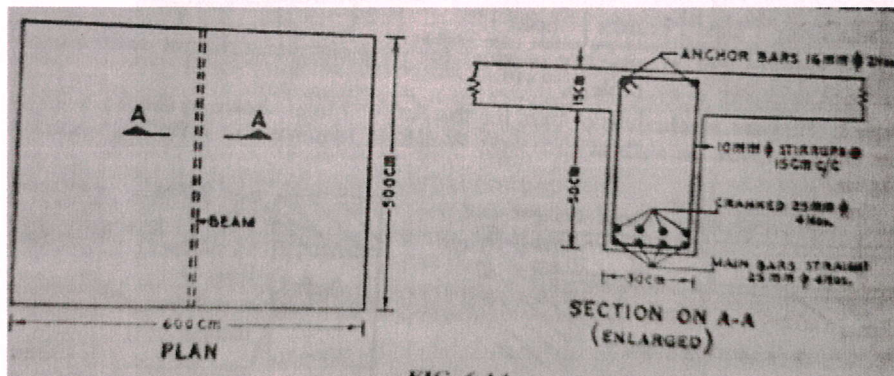

PLAN

SECTION ON A-A (ENLARGED)

FIG 6.14

Fig.2

OR

7   A cantilever RC beam projects beyond the fixed end by 3 m and is 30 cm x 60 cm at   **10M**
     fixed end and reduced to 30 cm x 15 cm at the free end. At the fixed end the beam is
     reinforced with 4 bars 20 mm dia at the top and 2 bars are curtailed at a distance of 1.41
     m from the fixed end, but the remaining 2 bars continued up to the free end. The beam is
     provided with 6 mm dia two legged stirrups 20 cm centre to centre for the entire length.
     At the bottom there are 2 bars 10 mm dia as stirrup fixture. Weight of bars are 20 mm =
     2.47 kg/m, 10 mm = 0.62 kg/m, 6 mm =-.22 kg/m. assume 25 mm clear cover and the
     main bars are suitably anchored, but is not needed in the estimate. Estimate the quantity
     of reinforcement.

SECTION AT FIXED END
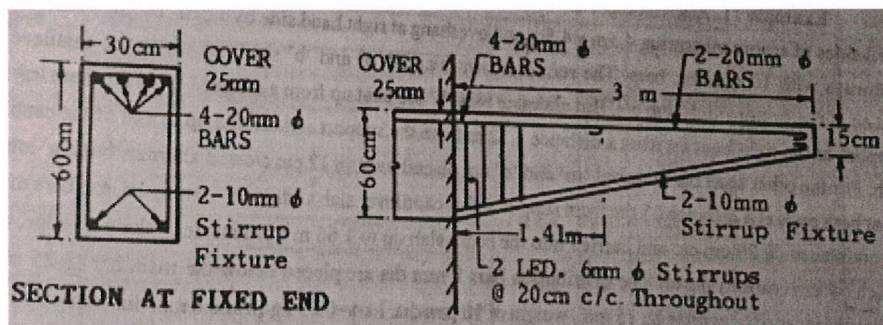
UNIT-IV

8   a   Prepare the rate per cu.m for 1:2:4 cement concrete.   **5M**
     b   Arrive the rate for I-class brickwork in superstructure with 20 x 10 x 10 cm brick **5M**
          with 1:6 cement sand mortar

OR

9   a   Prepare rate for ashlar masonry in superstructure in 1:6 cement sand mortar.   **5M**
     b   Calculate rate per sq.m for laying 2 cm thick damp proof course with 1:2 cement   **5M**
          mortar.

UNIT-V

10   A three-storied building is standing on a plot of land measuring 800 sq.m. The plinth   **10M**
     area of each storey is 400 sq.m. The building is of RCC framed structure and the future
     life may be taken as 70 years. The building fetches a gross rent of Rs.1500.00 per
     month. Work out the capitalized value of the property based on 6% net yield. For
     sinking fund 3% compound interest may be assumed. Cost of land may be taken
     Rs.40.00 per sq m. Other data as required may be assumed suitably.

OR

11   a   Write detailed specifications for white washing and colour washing.   **5M**
     b   Mention detail specifications for doors and windows.   **5M**

END