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Sixth Semester B.Arch. Degree Examination, Feb./Mar. 2022
Estimating and Costing

Time: 3 hrs. Max. Marks:100

Note: ***1. Answer Q.No.1 compulsory and any FOUR from Q.No.2 to Q.No.8.***
2. Follow written dimensions only.
3. Missing data, if any, may be suitably assumed.

1 Estimate the below mentioned items of work [Refer Fig.Q1]. **(40 Marks)**

a. Calculate centre line-calculations
b. Earthwork excavation for foundation @ Rs. 200 per cu.m
c. P.C.C Bed foundation (1:4:8)@ Rs. 300 per cu.m.
d. First class brick masonry foundation @ Rs. 1500 per cu.m.

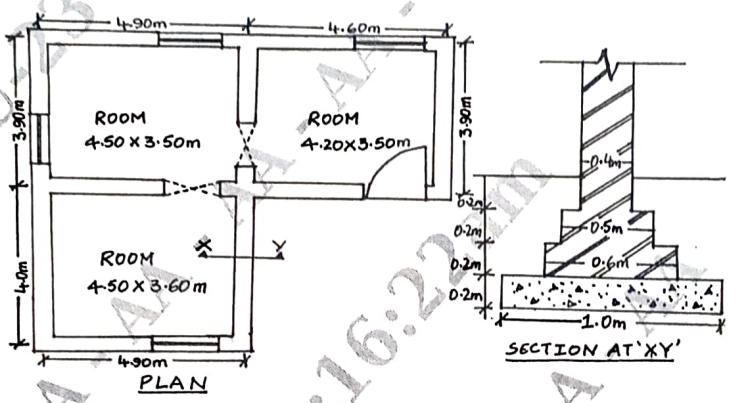

Fig.Q1

2 Write a technical specification for any three of the following:

a. First class brick work in super structure in CM (1:6)
b. Cement plastering in CM (1:4)
c. R.C.C. (1:2:4) for roof slab
d. Random rubble stone masonry in CM (1:6). **(15 Marks)**

3 Work out from the first principles, the rate analysis for any three of the following:

a. PCC (1:4:8) for foundation bed
b. 12 mm thick plastering in CM (1:6) in superstructure
c. 25 mm thick cement concrete flooring of (1:2:4)
d. Coursed rubble stone masonry in CM (1:6) for foundation. **(15 Marks)**

4 Reduce level (RL) of ground along the centerline of proposed road from chainage 10th to 20th chainage are given below. The formation level at the 10th chainage is 107 M and the road is downward gradient of 1 in 150 upto the chainage 14th and then the gradient charges to 1 in 100 downward. Formation width of road is 10 meters and side slopes of banking are 2:1 (horizontal : vertical). Length of the chain is 30 M. Draw longitudinal section of the road and a typical cross-section and prepare estimate of the earth work at the rate of Rs.275/m^3.

Chainage	10	11	12	13	14	15	16	17	18	19	20
R.L. of ground (M)	105.00	105.60	105.44	105.90	105.42	104.30	105.00	104.10	104.62	104.00	103.30

(15 Marks)

5 a. The steel quality is to be computed diameter wise from following data :
b. Size of column footing 1.5 × 1.5m in plan
Steel provided for footing – 10mm ₹ 15cm c/c both ways
Cross section of column – 30cm × 30m
Main reinforcement of column – 4 – 20mm ₹ 4 – 16mm ₹
Ties 8mm ₹ @ 10 cm c/c
Height of column – 5mt
Weight of 8mm – 4kg/mt
10mm – 6 kg/mt
16mm – 1.6 kg/mt
20mm – 2.5 kg/mt. **(15 Marks)**

6 Calculate the quantity of earth work for 400mt length for a portion of road in a uniform ground the height of bank at two ends begin 7 and 1.4. The formation width is 7.0mt and side slope 2 : 1 (horizontal to vertical). Assume that there is no transverse slope. Calculate the quantity using method – I. **(15 Marks)**

7 Write short notes on any Three of the following :
a. Lump sum contract
b. Overhead costs
c. Schedule of rates
d. Bill of quantities **(15 Marks)**

8 Prepare a detailed estimate of a R.C.C. beam of 8m clear span and 75cm × 40cm in section from the given drawings. Steel in detail and R.C.C. work shall be calculated separately. [Refer Fig.Q8]

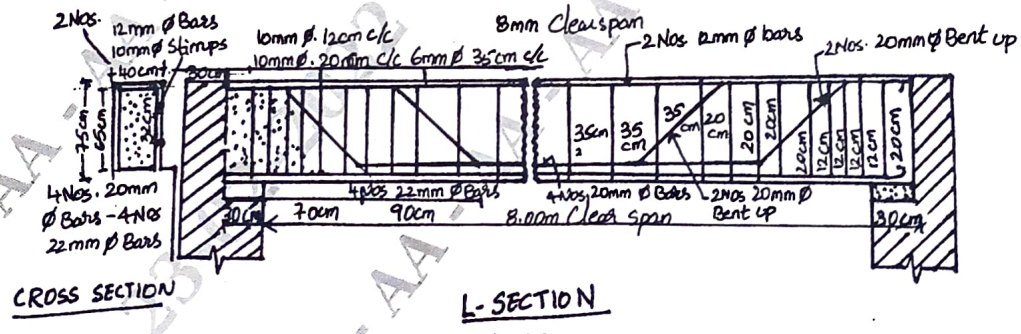

Fig.Q8

(15 Marks)

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