Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

B.Arch - SEMESTER– VI EXAMINATION – SUMMER 2024

Subject Code: 2X65005 Date:28-05-2024

Subject Name: Estimating And Costing

Time:10:30 AM TO 12:30 PM Total Marks:50

Instructions:

1. **Attempt any five out of seven questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**
4. **Simple and non-programmable scientific calculators are allowed.**

Q.1 **(a)** What is specification? Differentiate between brief specifications and detailed specifications. **06**

(b) Write formulas for the following: (1) Area of Segment of Circle (2) Volume of frustum of cone (3) Volume of sphere (4) Volume of cylinder **04**

Q.2 **(a)** List out different types of Detailed estimate. Compare revised estimate and supplementary estimate. **06**

(b) Provide the prevailing market rates for following materials in your city. **04**
i) 10 mm diameter MS bar ii) Kota stone
iii) Gully trap iv) Cement

Q.3 **(a)** Explain the detailed specification for RCC slab of M20 grade concrete. **06**

(b) Give measurement units for following materials used in construction. **04**
i) Cement plaster ii) Skirting work iii) G.I. Pipe iv) Brick masonry

Q.4 **(a)** Calculate the following: **06**

1. No. of bricks required for 5 cu. m. brickwork.
2. Materials required for $10m^3$ Brick masonry in C.M 1:4.

(b) Write short note on Schedule of rates (S.O.R) & Task of Work **04**

Q.5 **(a)** Work out rate analysis for 15 mm thick cement plaster in C.M. 1:3. **06**

(b) Give the rules for deductions in plaster work. **04**

Q.6 A simply supported beam of 300mm x 450mm resting on two wall support of 230mm thick with clear distance between supports 5m. The reinforcement provided in the beam is as follows. Take top/bottom/side cover = 25mm. **10**

Top bars: - 2Nos-10mmø Bottom bars: - 4Nos-20mmø
Bent up bars: - 2Nos-20mmø Stirrups: - 6mmø @ 300mm c/c

Calculate the following quantities.

A. Total quantity of steel bars
B. Quantity of form work
C. Number of cement bags required
D. Quantity of concrete work

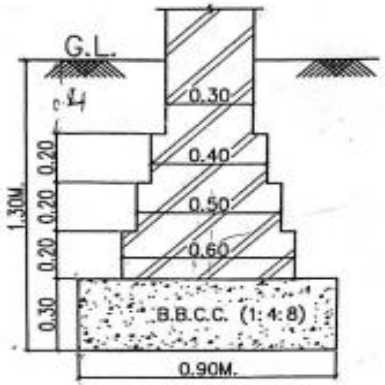
Q.7 Fig. shows details of a residential building. Calculate the quantities of the following items. **10**

A. Earthwork in excavation for foundation

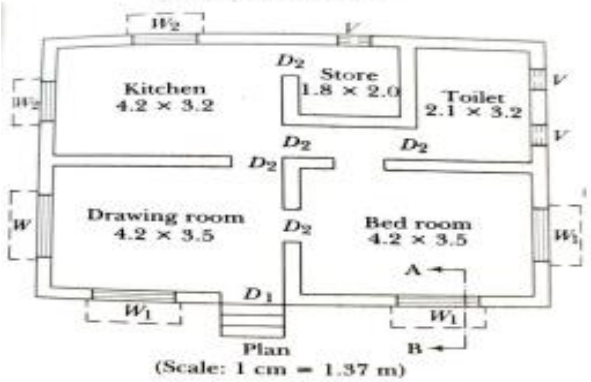
B. BBCC work for foundation (1:4:8)

C. Brick masonry up to ground level in c.m. 1:6.

****



FOUNDATION DETAIL



Plan

(Scale: 1 cm = 1.37 m)

D	1.1 × 2.1	W_1	1.5 × 1.2
D_2	0.9 × 2.1	W_2	1.2 × 1.2
W	1.8 × 1.2	V	0.6 × 0.6