Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–VII (NEW) EXAMINATION – WINTER 2022

Subject Code:3170615 Date:05-01-2023

Subject Name:Engineering Economics, Estimation and Costing

Time:10:30 AM TO 01:00 PM Total Marks:70

Instructions:

1. **Attempt all 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 are the reasons of exceeding the actual cost to estimated cost? **03**

(b) Give the types of estimates and any one in detail. **04**

(c) Determine the following quantity of items of works by considering given drawing figure -1 of a residential building. **07**

(1) Earthwork in excavation for foundation.

(2) Foundation concrete in 1:3:6.

(3) Brick Masonry work up to plinth level in C.M. (1:6)

Q.2 **(a)** A contractor takes a loan of Rs. 5, 00,000 for purchase of construction equipment. If rate of interest is 10% and he wishes to repay the loan in 10 yearly installments, find out value of installment. **03**

(b) Explain project cash flow diagram with factors affecting it. **04**

(c) Define break-even point. Draw a break-even chart and write break-even analysis assumptions. **07**

OR

(c) Discuss evaluation of public projects. **07**

Q.3 **(a)** Give the purposes of specifications. **03**

(b) Write detailed specifications for reinforced cement concrete (1:2:4) **04**

(c) Determine the following quantity of items of works by considering given drawing figure -1 of a residential building. **07**

(1) Foundation concrete in 1:3:6

(2) Earth filling in plinth.

(3) 12mm thick smooth plaster inside rooms and on ceiling in C.M.(1:3)

OR

Q.3 **(a)** Give the importance of specifications. **03**

(b) Write detailed specifications for earthwork in excavation in foundation. **04**

(c) Calculate the quantities of earthwork by mean sectional area method. **07**

Chainage (m)	80	100	120	140	160	180	200	220
G.L.	6.15	6.30	6.40	6.49	7.00	6.79	6.82	6.91

Formation width = 10m, Side slope = 1:2

Formation level at 160m chain =7.0m

Longitudinal gradient is levelled.

Q.4 **(a)** Define rate analysis. State factors affecting rate analysis. **03**

(b) Calculate the material required for 20mm thick plaster in wall for 100m^2 (C.M. 1:3). **04**

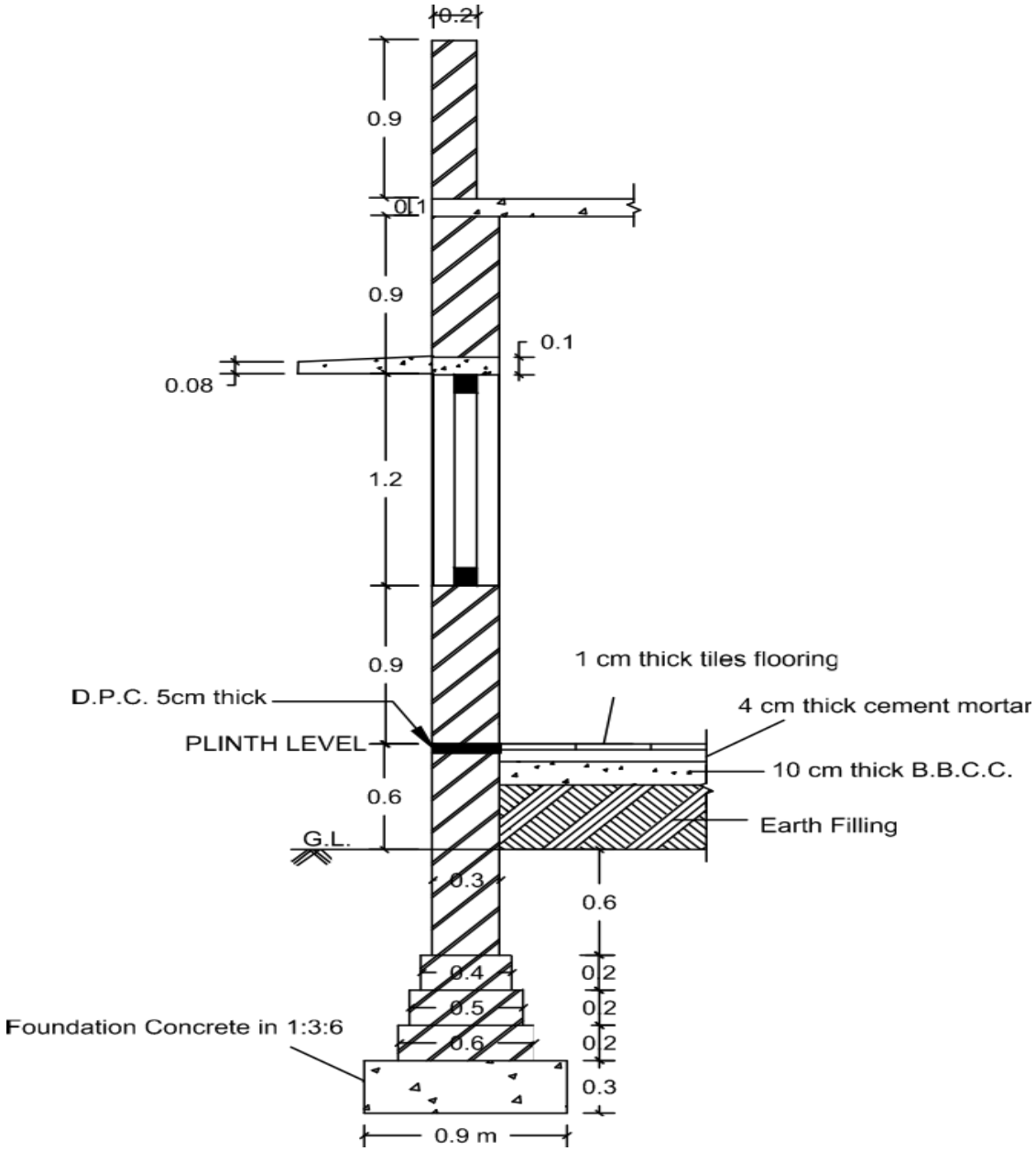
(c) Define contract. List different types of contracts and explain percentage rate contract. **07**

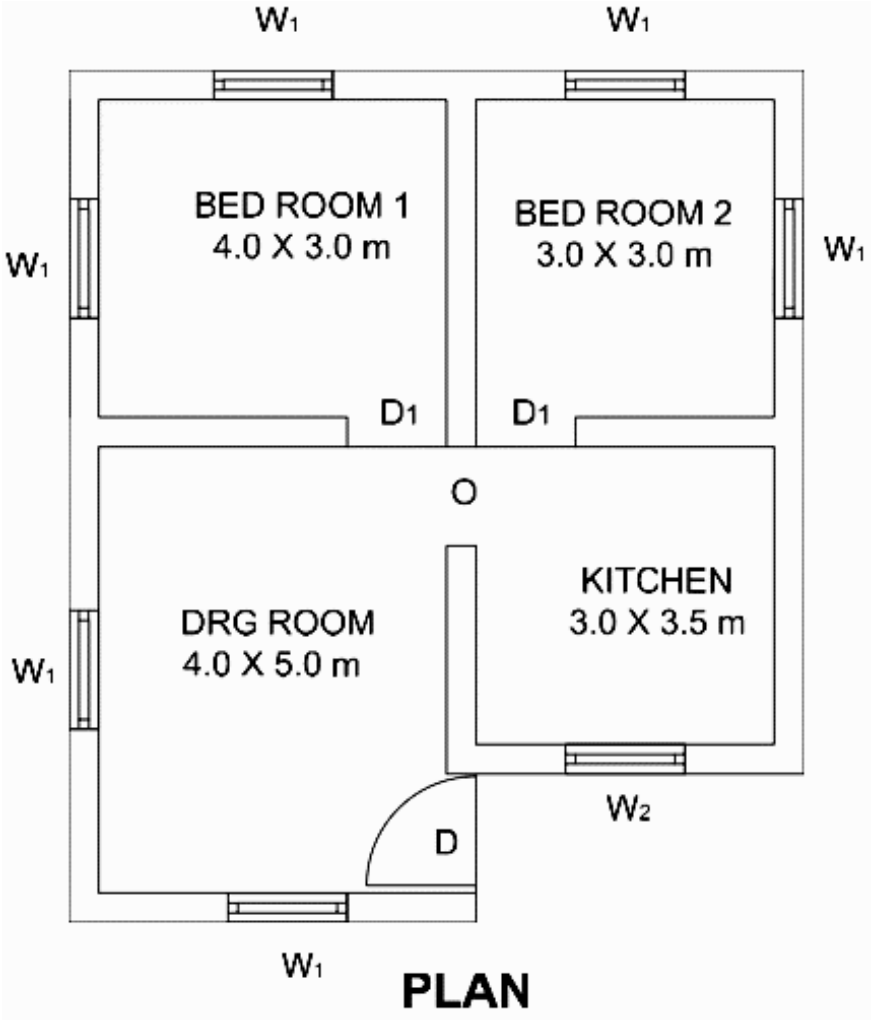
OR

Q.4	**(a)**	Give the current market rates of the following: (1) Cement (2) Sand (3) Aggregate (4) Bricks (5) Mild steel bars (6) Marble	**03**
	(b)	Give rate analysis of first class brickwork in superstructure in C.M. 1:6 for $10m^3$.	**04**
	(c)	Define tender and discuss important points to be included in the tender notice.	**07**
Q.5	**(a)**	Differentiate between Estimating and Valuation.	**03**
	(b)	Define the terms: (1) Book value (2) Scrap value (3) Monopoly value (4) Sentimental value	**04**
	(c)	Discuss various reasons for rejection of the lowest tender.	**07**

OR

Q.5	**(a)**	Define Valuation. Give purposes of valuation.	**03**
	(b)	Differentiate between Depreciation and Obsolescence.	**04**
	(c)	Differentiate between Earnest Money Deposit (EMD) and Security Deposit (SD).	**07**





Note: all dimension are in meter.
Take 15cm lintel bearing.

SCHEDULE OF OPENING

O = 1.2 X 2.1 m
D = 1.2 X 2.1 m
D_1 = 1.0 x 2.1 m
W_1 = 1.2 x 1.2 m
W_2 = 1.0 x 0.9 m

Figure-1

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