GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER–VII (NEW) EXAMINATION – SUMMER 2022

Subject Code:3170615   **Date:03/06/2022**
Subject Name:Engineering Economics, Estimation and Costing
Time:02:30 PM TO 05:00 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.**

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Q.1	**(a)**	Write the factors influencing supply and demand of the product.	**03**
	(b)	Explain in detail: Time value of money	**04**
	(c)	Define the following terms: 1. Cost 2. Price 3. Spot Item 4. Prime Cost 5. Provisional Quantity 6. Salvage value 7. Scrap value	**07**
Q.2	**(a)**	Write how approximate cost of construction can be calculated by using service unit method. Also write service units of various types of construction.	**03**
	(b)	Give rules of deductions in plastering and pointing work.	**04**
	(c)	For the **figure-1** calculate the quantities of following items: 1) Excavation for foundation 2) Brick masonry work in foundation up to plinth in 1:6.	**07**
		OR	
	(c)	For the **figure-1** calculate the quantities of following items: 1) Foundation Concrete 2) 12mm thick smooth plaster inside rooms and on ceiling in C.M. 1:3.	**07**
Q.3	**(a)**	Write principles of writing specifications.	**03**
	(b)	Explain requirements of a valid contract.	**04**
	(c)	Write specification for R.C.C. work in 1:1.5:3 for slab.	**07**
		OR	
Q.3	**(a)**	What is specification? Write its necessity.	**03**
	(b)	Differentiate between brief specifications and detailed specifications.	**04**
	(c)	Define contract. Explain (I) Item rate contract (II) Material supply contract (III) Turn-key contract	**07**
Q.4	**(a)**	Discuss factor affecting the task work?	**03**
	(b)	Discuss various reasons for rejection of the lowest tender.	**04**
	(c)	Give current market rate with measurement unit of following: Brick, Sand, Cement, Aggregate, Steel Bar and Lime. Also calculate quantity of material required for 10 m^3 Brick Masonry in C.M. 1:4.	**07**
		OR	
Q.4	**(a)**	Write short note on S.O.R.	**03**
	(b)	Explain in detail termination of contract.	**04**
	(c)	Work out rate analysis for 15 mm thick cement plaster in C.M. 1:3.	**07**
Q.5	**(a)**	Enlist different form of values and explain any two in brief.	**03**
	(b)	A person purchased a land in 25,00,000 before 7 years. Presently value of same land is 40,00,000. Consider compound interest of 6% on Fixed deposit and calculate net profit to the owner of land.	**04**
	(c)	From the following details find out the monthly rent of a property:	**07**

Cost of land – 15,00,000, Cost of construction – 12,00,000, Expected returns on investment – 12%, Interest rate on sinking fund – 5%, Outgoings – 30% of gross rent, Expected life of the building – 30 years and scrap value = 15%.

OR

Q.5 **(a)** Explain factors affecting value of property. **03**

(b) Differentiate between depreciation and obsolesce. **04**

(c) A machine is purchased for Rs-1,25,000. Assuming its life 17 years and its salvage value 12%. Calculate the book value at the end of each year for 5 years in a tabular form by using following methods: (1) Straight Line Method (2) Constant Percentage Method. **07**

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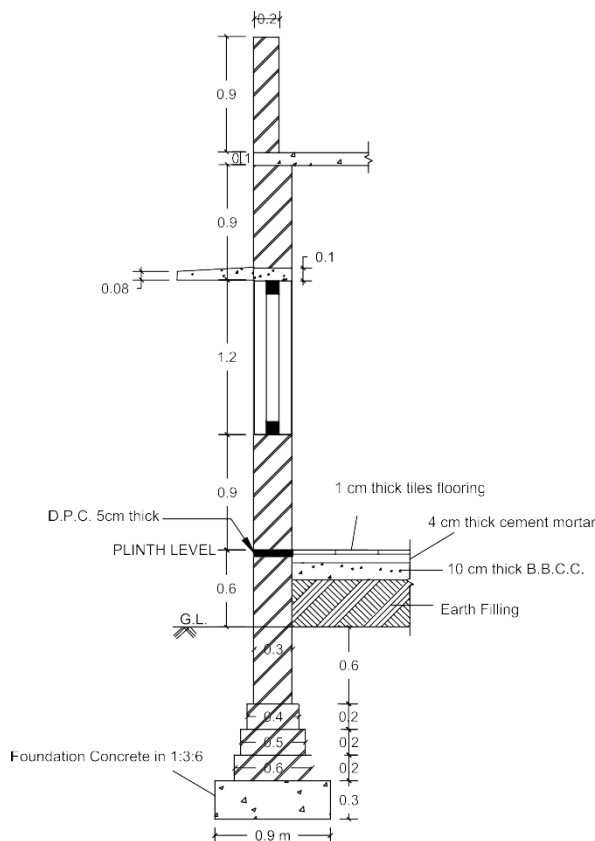
Note: all dimension are in meter.
Take 15cm lintel bearing.
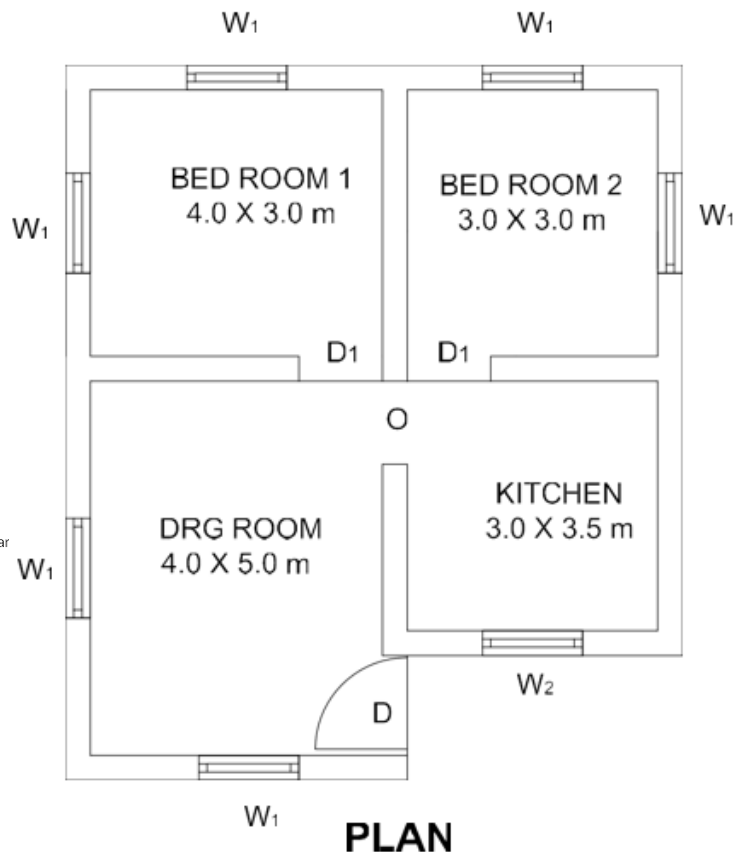
SCHEDULE OF OPENING
O = 1.2 X 2.1 m
D = 1.2 X 2.1 m
D₁ = 1.0 x 2.1 m
W₁ = 1.2 x 1.2 m
W₂ = 1.0 x 0.9 m

Figure-1