GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER–VII (NEW) EXAMINATION – WINTER 2021

Subject Code:3170615   **Date:13/12/2021**

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.**

			Marks
Q.1	**(a)**	Differentiate between Estimating and Valuation.	**03**
	(b)	Write a note on following. (1) Contingencies (2) Work Establishment Charge.	**04**
	(c)	For the given figure-1, compute the quantities of following items. (1) Earthwork in excavation (2) Cement concrete in foundation (3) 1st class Brick masonry work up to G.L in c.m. (1:6) (4) Back filling in foundation trench.	**07**
Q.2	**(a)**	Explain Cash Flow Diagrams with suitable Example.	**03**
	(b)	Write a note on Pay Back Period Method.	**04**
	(c)	Explain concept of "Time Value of Money".	**07**
		OR	
	(c)	Explain Effect of Taxation on comparison of alternatives with Suitable Example.	**07**
Q.3	**(a)**	Define Specifications and mention their objectives.	**03**
	(b)	What are the essential principles of good specification writing?	**04**
	(c)	Write a critical note on the liquidated damages and mention its circumstance under which the owner may lose his right to the liquidated damages.	**07**
		OR	
Q.3	**(a)**	Write a short note on 'importance of specification".	**03**
	(b)	Write a specification for brickwork I class in c.m. (1:6)	**04**
	(c)	Draft a tender notice for construction of Hospital, on behalf of R&B department, Government of Gujarat. The estimated cost of work is Rs. 12, 25, 73, 000/-.	**07**
Q.4	**(a)**	Define "Rate analysis" and mention its Purpose.	**03**
	(b)	Calculate the material Required for 12 mm thick plaster in wall for 100 sqm. Take (C.M. 1:6)	**04**
	(c)	How can a contract be terminated?	**07**
		OR	
Q.4	**(a)**	Write a short note on SOR.	**03**
	(b)	Calculate the material Required for 1 cum of R.C.C work for slab proportion (1:2:4) with steel reinforcement.	**04**
	(c)	Differentiate between Departmental Execution and Contract System	**07**
Q.5	**(a)**	Differentiate between Administrative approval and Technical Sanction.	**03**
	(b)	Define the terms: (1) Price, (2) Cost, (3) Outgoings, (4) arbitration.	**04**

(c) Using Prismoidal formula, compute the earthwork in cutting and filling from the following data.   **07**

Chainage (m)	0	200	400	600	800
Depth of cutting (m)	2	0.5	0	-	-
Depth of filling (m)	-	-	0	1.5	3.0

Formation width of road= 10 m.
Side slope for filling H:V= 2:1
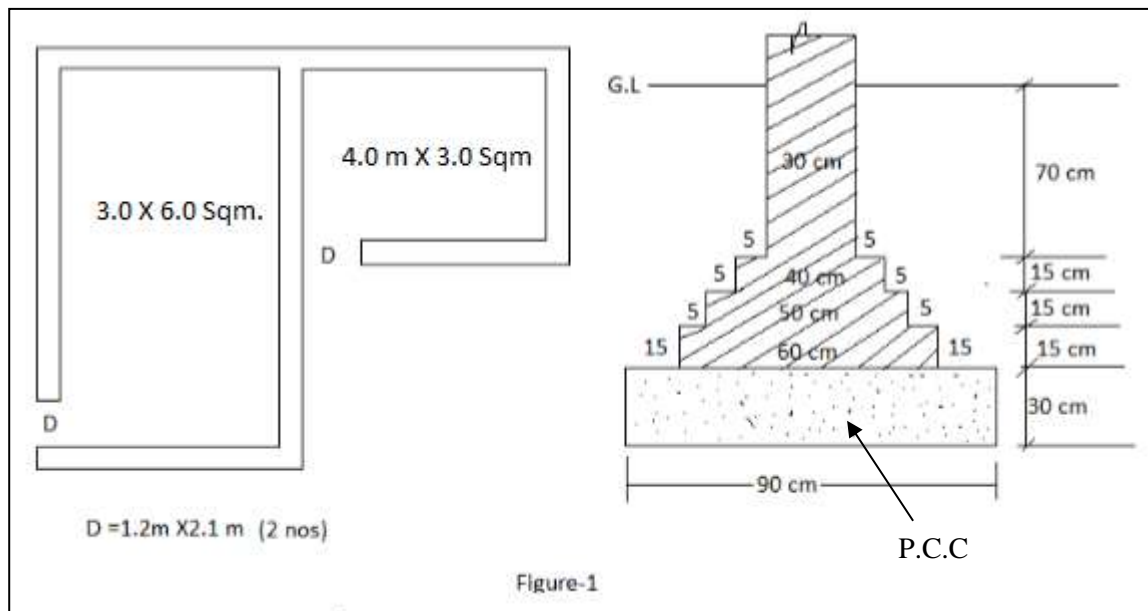Side slope for cutting H:V= 1:1
Transverse slope of ground = nil

OR

Q.5 (a) Differentiate Revised Estimate and Supplementary Estimate.   **03**

(b) Define the terms: (1) Salvage value, (2) Market value, (3) Monopoly value, (4). Fair value   **04**

(c) Calculate the volume of earthwork for a Proposed road having formation width 7.5 m and side slope 1:1 using mid sectional area Method. Details of road are given below.   **07**

Chainage (m)	0	30	60	90	120	150	180	210	240	270	300
G.L. (m)	10.55	10.5	10.4	10.35	10.2	10	9.8	9.65	9.6	9.4	9.2

Formation level of Road = 10.00 m

Figure-1

Note: 1. Drawings are not to the scale
2. All walls are 30 cm thick

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.**

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 m³ 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