Name:

Enrolment No:



UPES

End Semester Examination, December 2023

Course: Engineering Economics, Estimation and Costing

Program: B.Tech. Civil Engineering

Course Code: CIVL 4066

Semester: VII Time: 03 hrs.

Max. Marks: 100

Instructions: All questions are compulsory to attempt.

SECTION A (5Qx4M=20Marks)

S. No.		Marks	CO
Q 1.	State the essential differences between general and detailed specifications.	04	CO2
Q 2.	What is rate analysis? Discuss the procedure of rate analysis estimation in civil engineering works.	04	CO4
Q 3.	Define the term "Price Elasticity of Demand" and explain its relevance in the market statistics.	04	CO1
Q 4.	What is aggregate demand and state the procedure for calculating the same?	04	CO1
Q 5.	State the essential elements of engineering economics decision-making.	04	CO1

SECTION B (4Qx10M= 40 Marks)

Estimate the quantities of earthwork, concrete, brickwork, finishing and Q 6. nosing work of three sides step given below in the drawings: Plinth Level 27.5 cm Tread 3.00 m 90 cm **ELEVATION** 5 cm SECTION ON AB. > CO₂ **10** Verandah 1.00 m 2.5 cm **Details of Nosing** 3.00 m Treads – 27.5 cm including 2.5 cm Nosing Risers 18 cm PLAN

	cuna				ıls requir		15 m ³ (of first-	-class	10	CO4
Explain the relevances. Explain the	OR e term Gross Domestic Product (GDP) along with its relevance.							10	CO1		
Mr. Raghav cash inflows 1,35,000, R	av is considering to invest Rs. 3,80,000 in a hardware business. The bws during the first, second and third years are expected to be Rs. Rs. 1,65,000 and Rs, 1,90,000, respectively. Cost of capital is							10	CO1		
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respectively. 1.5:1. The higround and leading to the control of th	Side eight bed an	slopes of the breas: 1 00.00	in excar panks fro	wation om the b	of the cared is 2.7: 3 100.52	nnel is 5m thro 10 D/W	1:1 and ughout. 4 0.57	I in bar The R	nking Ls of	20	
side. Assume a free board of 0.50 m. b) Determine the cost of the permanent land required for the construction of the channel. The rate of the land is Rs. 18,000 per sq m. c) Determine the economical depth of digging. OR Reduced levels (RLs) of the ground in meters along the centre line of the proposed road from chainage 10 to chainage 18 are given below.										CO3	
Longitudin 1 in 150 or 0.67% al Slope							1 in 100 or 1%				
RL of Ground (m) RL of	105	105.6	105.44	105.9	105.42	104.3	105 105.6	104.1	104.6		
_	Explain the Also discuss Mr. Raghav cash inflows 1,35,000, R 11.50%. De answer. a. Determine width is 6m respectively 1.5:1. The h ground and length of Ground (m) RL of Bed (m) The length of side. Assumb) Determine the channel. c) Determine the channel. c) Determined Reduced lever proposed rose Longitudin al Slope Chainage RL of	Explain the term Also discuss the decorate Mr. Raghav is correcash inflows durit 1,35,000, Rs. 1,611.50%. Determine answer. a. Determine the width is 6m and respectively. Side 1.5:1. The height ground and bed an Chainage RL of Ground (m) RL of Bed (m) The length of the side. Assume a free the channel. The rec) Determine the the channel. The rec) Determine the decorate Reduced levels (I proposed road from Longitudin al Slope Chainage 10 RL of 105	Explain the term Gross Also discuss the different Mr. Raghav is considerin cash inflows during the 1,35,000, Rs. 1,65,000 at 11.50%. Determine the I answer. a. Determine the quantity width is 6m and top with respectively. Side slopes 1.5:1. The height of the beground and bed are as: Chainage I RL of 100.00 Ground (m) RL of Bed 98.50 (m) The length of the chain viside. Assume a free board b) Determine the cost of the channel. The rate of the channel. The rate of the channel of	Explain the term Gross Domestic Also discuss the different types of Mr. Raghav is considering to invecash inflows during the first, secondary to the f	Explain the term Gross Domestic Produced Also discuss the different types of GDP. Mr. Raghav is considering to invest Rs. 3 cash inflows during the first, second and 1,35,000, Rs. 1,65,000 and Rs, 1,90,00 11.50%. Determine the IRR for the programswer. SE (2Qx20) a. Determine the quantity of earth work width is 6m and top widths of the left respectively. Side slopes in excavation of 1.5:1. The height of the banks from the biground and bed are as: Chainage 1 2 RL of 100.00 100.31 Ground (m) RL of Bed 98.50	relevances. OR Explain the term Gross Domestic Product (GDP Also discuss the different types of GDP. Mr. Raghav is considering to invest Rs. 3,80,000 icash inflows during the first, second and third yet 1,35,000, Rs. 1,65,000 and Rs, 1,90,000, respect 11.50%. Determine the IRR for the proposed invanswer. SECTION-(2Qx20M=40 M) a. Determine the quantity of earth work in an irrespectively. Side slopes in excavation of the cat 1.5:1. The height of the banks from the bed is 2.7: ground and bed are as: Chainage RL of Ground (m) RL of Bed (m) The length of the chain was 60m. Extra width be side. Assume a free board of 0.50 m. b) Determine the cost of the permanent land requithe channel. The rate of the land is Rs. 18,000 per c.) Determine the economical depth of digging. OR Reduced levels (RLs) of the ground in meters a proposed road from chainage 10 to chainage 18 ar Longitudin al Slope Chainage 10 11 12 13 14 RL of 105 105.6 105.44 105.9 105.42	Explain the term Gross Domestic Product (GDP) along Also discuss the different types of GDP. Mr. Raghav is considering to invest Rs. 3,80,000 in a hard cash inflows during the first, second and third years are 1,35,000, Rs. 1,65,000 and Rs, 1,90,000, respectively. 11.50%. Determine the IRR for the proposed investment answer. SECTION-C (2Qx20M=40 Marks) a. Determine the quantity of earth work in an irrigation width is 6m and top widths of the left and right band respectively. Side slopes in excavation of the cannel is 1.5:1. The height of the banks from the bed is 2.75m throground and bed are as: Chainage RL of 100.00 100.31 100.52 10 Ground (m) RL of Bed 98.50	relevances. OR Explain the term Gross Domestic Product (GDP) along with it Also discuss the different types of GDP. Mr. Raghav is considering to invest Rs. 3,80,000 in a hardware b cash inflows during the first, second and third years are expect 1,35,000, Rs. 1,65,000 and Rs, 1,90,000, respectively. Cost of 11.50%. Determine the IRR for the proposed investment and in answer. SECTION-C (2Qx20M=40 Marks) a. Determine the quantity of earth work in an irrigation channe width is 6m and top widths of the left and right banks are respectively. Side slopes in excavation of the cannel is 1:1 and 1.5:1. The height of the banks from the bed is 2.75m throughout ground and bed are as: Chainage I 2 3 4 RL of Bed (m) RL of Bed (m) The length of the chain was 60m. Extra width beyond toe is 1.2 side. Assume a free board of 0.50 m. b) Determine the cost of the permanent land required for the cost the channel. The rate of the land is Rs. 18,000 per sq m. c) Determine the economical depth of digging. OR Reduced levels (RLs) of the ground in meters along the centre proposed road from chainage 10 to chainage 18 are given below. Longitudin al Slope Chainage 10 11 12 13 14 15 16 RL of 105 105.6 105.44 105.9 105.42 104.3 105	relevances. OR Explain the term Gross Domestic Product (GDP) along with its relev Also discuss the different types of GDP. Mr. Raghav is considering to invest Rs. 3,80,000 in a hardware business cash inflows during the first, second and third years are expected to b 1,35,000, Rs. 1,65,000 and Rs, 1,90,000, respectively. Cost of capi 11.50%. Determine the IRR for the proposed investment and interpret answer. SECTION-C (2Qx20M=40 Marks) a. Determine the quantity of earth work in an irrigation channel whose width is 6m and top widths of the left and right banks are 4m & respectively. Side slopes in excavation of the cannel is 1:1 and in ban 1.5:1. The height of the banks from the bed is 2.75m throughout. The R ground and bed are as: Chainage 1 2 3 4 5 RL of Ground (m) RL of Bed (m) PRL of Bed (m) 1 in 4500 D/W The length of the chain was 60m. Extra width beyond toe is 1.2 m on side. Assume a free board of 0.50 m. b) Determine the cost of the permanent land required for the constructive channel. The rate of the land is Rs. 18,000 per sq m. c) Determine the economical depth of digging. OR Reduced levels (RLs) of the ground in meters along the centre line of proposed road from chainage 10 to chainage 18 are given below. Longitudin al Slope Chainage 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	relevances. OR Explain the term Gross Domestic Product (GDP) along with its relevance. Also discuss the different types of GDP. Mr. Raghav is considering to invest Rs. 3,80,000 in a hardware business. The cash inflows during the first, second and third years are expected to be Rs. 1,35,000, Rs. 1,65,000 and Rs, 1,90,000, respectively. Cost of capital is 11.50%. Determine the IRR for the proposed investment and interpret your answer. SECTION-C (2Qx20M=40 Marks) a. Determine the quantity of earth work in an irrigation channel whose bed width is 6m and top widths of the left and right banks are 4m & 2.5m respectively. Side slopes in excavation of the cannel is 1:1 and in banking 1.5:1. The height of the banks from the bed is 2.75m throughout. The RLs of ground and bed are as: Chainage 1 2 3 4 5 RL of 100.00 100.31 100.52 100.57 99.68 Ground (m) RL of Bed 98.50	relevances. OR Explain the term Gross Domestic Product (GDP) along with its relevance. Also discuss the different types of GDP. Mr. Raghav is considering to invest Rs. 3,80,000 in a hardware business. The cash inflows during the first, second and third years are expected to be Rs. 1,35,000, Rs. 1,65,000 and Rs, 1,90,000, respectively. Cost of capital is 11.50%. Determine the IRR for the proposed investment and interpret your answer. SECTION-C (2Qx20M=40 Marks) a. Determine the quantity of earth work in an irrigation channel whose bed width is 6m and top widths of the left and right banks are 4m & 2.5m respectively. Side slopes in excavation of the cannel is 1:1 and in banking 1.5:1. The height of the banks from the bed is 2.75m throughout. The RLs of ground and bed are as: Chainage I 2 3 4 5 Ground (m) RL of Bed 98.50

Q 11.	The formation level at 10 th chainage is 107m and road is downward gradient of 1 in 150 upto chainage 14 and then gradient changes to 1 in 100 downwards. Formation width is 10m and side slopes are 2:1. Length of the chain is 35m. Draw longitudinal section of the road and a typical cross-section and prepare an estimate of earthwork at the rate of Rs. 290 per cubic meter. Estimate the quantities of the following items for a motor garage from the given plan and section by Long wall-Short wall method: a. Earthwork in excavation in foundation b. Lime concrete in foundation c. 1 st class brickwork in foundation and plinth d. 2 cm thick DPC e. 1 st class brickwork in superstructure f. RCC (1:2:4) work excluding steel and its bending MOTOR GARAGE 7.5 cm LC. Lintel 30 cm 7.5 cm LC. Lintel 30 cm 2.20 cm R.C.C. Lintel 30 cm 4 cm C.C. over 7.5 cm L.C. 20 cm 4 cm C.C. over 7.5 cm L.C. 20 cm	20	CO3
	3.00 m		
	35 cm 2.5 cm CC over cm 7.5 cm L.C. 10 cm 10 cm 10 cm		
	30 cm Shelves 1.00 m × 1.80 m 2.00 m Ramp For Both the state of the		