Code: 19A172T

IV B.Tech. I Semester Supplementary Examinations March / April 2023

Estimation, Costing and Valuation

(Civil Engineering)

Max. Marks: 70   Time: 3 Hours

Answer *any five full questions* by choosing one question from each unit (5x14 = 70 Marks)

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		Marks	CO	BL

UNIT–I

		Marks	CO	BL
1. a)	What are green building materials? Explain the criteria for selection of green building materials.	7M	1	1
b)	Explain the need for construction of green buildings?	7M	1	1

OR

		Marks	CO	BL
2. a)	State when green building is an eco-friendly sustainable structure?	7M	1	2
b)	What is green buildings? State its design objectives.	7M	1	1

UNIT–II

		Marks	CO	BL
3. a)	What is a tender? Explain the purpose of 'earnest money' deposit.	7M	2	2
b)	Write detailed Specifications for the following items of work: i) Plain cement concrete in foundation ii) RCC Slab	7M	2	2

OR

		Marks	CO	BL
4. a)	What is Specification? State the different purposes served by Specifications?	7M	2	2
b)	Draft a tender notice for the work of Construction of a hospital building costing Rs. 520lakhs.	7M	2	2

UNIT–III

		Marks	CO	BL
5. a)	Prepare a list of Contract documents.	7M	3	1
b)	What is the advantage of using a standard set of 'Conditions of Contract'?	7M	3	2

OR

		Marks	CO	BL
6. a)	What are the different types of contracts? Explain them briefly.	7M	3	1
b)	Why is it desirable to appoint an independent arbitrator? What qualifications should the arbitrator possess?	7M	3	2

UNIT–IV

		Marks	CO	BL
7. a)	What do you understand by i) Overhead cost ii) Analysis of rates iii) Contingencies and supervision charges iv)Standard measurements book v)Prime cost	7M	4	2

b) Prepare the rate analysis for Lime Concrete in Foundation with 40mm gauge Brick Ballast 7M 4 4

OR

8. Prepare the rate analysis for following :
(a) I-Class Brick work in superstructure with 20x10x10cm Brick with 1:6 cement sand Mortar-Unit 1 cum
(b) Ashlar Masonary in Superstructure in 1:6 cement sand mortar-unit 1 cu.m 14M 4 4

<u>**UNIT–V**</u>

9. a) Calculate the standard rent of a Government residential building newly constructed from the following data
(i) Cost of land Rs 10,000/-
(ii) Cost of Construction of the building =Rs. 40,000/-
(iii) Cost of roads within the compound, and fencing Rs 2,000/-
(iv) Cost of Sanitary and water supply works-8% of the cost of building
(v) Cost of electric installation-10% of the cost of building
(vi) Municipal House tax-Rs 400/- per annum
(vii) Water tax-Rs250/-Per annum
(viii) Property tax-Rs 140/- Per annum 7M 5 4

b) Write short note on
i) Sinking Fund Method   ii) Declining balance method. 7M 5 2

OR

10. a) Explain the terms
(i) Obsolescence   (ii) Rateable Value   (iii) Book Value
(iv) Capitalized Value 7M 5 3

b) A Coloniser intends to purchase a land of 100,000sq m area located in the suburb of a big city to develop it in to plots of 700sq m each after providing necessary roads and parks and other amenities. The current sale price of small plots in the neighborhood is Rs 30.00 per sq.m. The colonisier wants a net profit of 20%. Work out the maximum price of the land at which the colonisier may purchase the land. 7M 5 4

END

R-19

Code: 19A17BT

IV B.Tech. I Semester Supplementary Examinations March/April 2023

Repair & Rehabilitation of Structure

(Civil Engineering)

Max. Marks: 70   Time: 3 Hours

Answer *any five full questions* by choosing one question from each unit (5x14 = 70 Marks)

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		Marks	CO	BL

UNIT–I

1. Outline the various chemical and physical causes of deterioration that ensure from construction deficiencies. — 14M 1 4

OR

2. Illustrate the dilapidation of concrete structures caused by non-uniform dimensional changes. — 14M 1 4

UNIT–II

3. a) Summarize are the various factors that influence the durability of concrete? — 7M 2 2

   b) Describe the term deterioration and the process of deterioration in concrete. — 7M 2 2

OR

4. Explain with relevant examples how air and moisture permeability of the concrete affects the health of the concrete. — 14M 2 2

UNIT–III

5. Outline a short note on the following special mortars used for repair of structures (i) Conventional mortar (ii) Dry pack mortar (iii) Ferro cement (iv) Grouts. — 14M 3 4

OR

6. Outline a short note on (i) epoxy system (ii) use of polymers and (iii) styrene butadiene rubber. — 14M 3 4

UNIT–IV

7. a) Outline the main principles involved in surface preparation for repair. — 7M 3 4

   b) Illustrate the various techniques used for arresting the water seepage/ leakage? — 7M 3 4

OR

8. Illustrate with neat figures the RCC jacketing of beams to enhance their flexural strength. — 14M 3 4

UNIT–V

9. Assess in which situations you would take up the process of conditional assessment. — 14M 4 5

OR

10. Argue the evaluation procedure of concrete by using ultrasonic pulse velocity, acoustic impact method and radioactive method. — 14M 4 5

END

Code: 19A171T

IV B.Tech. I Semester Supplementary Examinations March/April 2023

Transportation Engineering

(Civil Engineering)

Max. Marks: 70   Time: 3 Hours

Answer *any five full questions* by choosing one question from each unit (5x14 = 70 Marks)

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		Marks	CO	BL

UNIT–I

1. a) Explain the importance of roads in India? — 7M   1   2

    b) What are the significant recommendations of Jayakar committee report? Mention how this helped in road development in India? — 7M   1   1

OR

2. a) Explain briefly about features of third twenty year road development plan? — 7M   1   2

    b) Explain how the master plan is prepared and road development program is phased? — 7M   1   2

UNIT–II

3. a) Draw a neat sketch of national highway in cutting typical cross section indicating width of pavement, roadway and land? — 7M   2   4

    b) Derive an expression for calculating the stopping sight distance in highways? — 7M   2   6

OR

4. a) Design the rate of super elevation for a horizontal highway curve of radius 500m and speed 100kmph? Discuss the required S.E. and Friction? — 7M   2   6

    b) Calculate the extra widening required for a pavement of within 7m on a horizontal curve of radius 250m if the largest wheel base of vehicle expected on the road is 7m. Design speed is 70kmph. Compare the value required with IRC recommendations? — 7M   2   3

UNIT–III

5. a) Explain the term traffic volume? What are the objects of carrying out traffic volume studies? — 7M   3   2

    b) Explain the various design factors of road lighting? — 7M   3   2

OR

6. a) What are the various types of traffic islands used? Explain the uses of each? 7M 3 1

   b) Explain grade separated intersection, the advantages and limitations? 7M 3 2

UNIT–IV

7. a) Indicate the main features of HRB classification system. Discuss their advantages and limitations? 7M 4 1

   b) Explain briefly about crushing value test on stone aggregates? 7M 4 2

OR

8. a) Explain briefly about viscosity test on Bitumen? 7M 4 2

   b) Explain briefly about Hveem method of bituminous mix design? 7M 4 2

UNIT–V

9. a) Explain how climatic variations affect pavement design and performance? 7M 5 2

   b) Explain the CBR method of pavement design. How is this method useful to determine the thickness of component layers? 7M 5 2

OR

10. a) Calculate the stresses at interior, edge and corner regions of a concrete pavement using Westergaard's equation for the following data. Wheel load = 4100 kg, modulus of elasticity of concrete is $3.3*10^5$ kg/cm^2, pavement thickness is 30 cm, modulus of subgrade reaction is 8 kg/cm^3, diameter of loaded area is 25 cm, Poisson's ratio of concrete is 0.15. Assume data if any required. 7M 5 3

    b) Briefly outline the IRC recommendations for determining the thickness of cement concrete pavement? 7M 5 4

END

Code: 19A17HT

IV B.Tech. I Semester Supplementary Examinations March/April 2023

Water Resources and Conservation

(Common to All Branches)

Max. Marks: 70   Time: 3 Hours

Answer *any five full questions* by choosing one question from each unit (5x14 = 70 Marks)

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		Marks	CO	BL

UNIT–I

		Marks	CO	BL
1.	Write a detailed note on global water resources.	14M	1	3

OR

| 2. | Explain the theoretical basis of water resources scheduling including system framework and key technologies. | 14M | 1 | 3 |

UNIT–II

| 3. | Discuss the water quality parameters according to physical, chemical and biological parameters. | 14M | 2 | 2 |

OR

| 4. | What is runoff? What are the factors that affect the runoff from a catchment area? | 14M | 2 | 2 |

UNIT–III

| 5. | Write a note on social solutions, domestic solutions, commercial solutions and agricultural solutions for sustainable development of water resources. | 14M | 3 | 4 |

OR

| 6. a) | What are the differences between roof top rainwater harvesting and surface runoff rainwater harvesting? | 7M | 3 | 4 |
| b) | What are the advantages and disadvantages of rain water harvesting? | 7M | 3 | 4 |

UNIT–IV

7.	Write a note on the following.			
	a) Saving water saves energy			
	b) Saving water saves money			
	c) Saving water saves nature	14M	3	4

OR

| 8. | Write in detail about the environmental problems caused by dams. | 14M | 3 | 4 |

UNIT–V

| 9. | How to reduce water consumptions in industries. | 14M | 4 | 2 |

OR

| 10. | Write a note on contour forming with the help of neat sketch. | 14M | 4 | 2 |

END

Code: 19A17ET

IV B.Tech. I Semester Supplementary Examinations March / April 2023
Advanced Environmental Engineering
(Civil Engineering)

Max. Marks: 70   Time: 3 Hours
Answer *any five full questions* by choosing one question from each unit (5x14 = 70 Marks)
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			Marks	CO	BL

UNIT–I

1.	a)	Discuss in detail about causes and sources of Greenhouse emissions and possible remedial measures.	7M	CO1	L1
	b)	Explain the impact of agricultural and forest land degradation.	7M	CO1	L2

OR

2.	a)	Discuss about the depletion of natural resources.	7M	CO1	L1
	b)	What do you mean by ecological resilience and explain about the loss of resilience in land and water ecosystem.	7M	CO1	L2

UNIT–II

3.	a)	Explain in detail about various factors affecting the self-purification of streams.	7M	CO2	L2
	b)	Define dissolved oxygen. Mention its significance & a method to determine it.	7M	CO2	L1

OR

4.	a)	Discuss about Streeter-Phelps water quality monitoring tool.	7M	CO2	L1
	b)	Write a note on occupational health, importance and benefits of occupational nutrition at work place.	7M	CO2	L2

UNIT–III

5.	a)	Discuss about industrial waste water and its treatment.	7M	CO3	L1
	b)	Write a note on the liquid waste from sugar industry and modes of its disposal.	7M	CO3	L2

OR

6.	a)	Discuss about the characteristics of liquid waste from dairy industry & methods of its disposal.	7M	CO3	L1
	b)	Write a note on treatment of liquid waste from sugar industry.	7M	CO3	L2

UNIT–IV

7.	a)	What is soil pollution? Discuss about its causes, effects and solution to it.	7M	CO4	L1
	b)	Write a note on soil analysis.	7M	CO4	L2

OR

8.	a)	Explain Global warming. What are the causes and effects of Global warming?	7M	CO4	L1
	b)	Discuss in detail about Eco-friendly construction & its advantages.	7M	CO4	L2

UNIT–V

9.	a)	Discuss about classification of air pollutants and natural contaminants.	7M	CO5	L1
	b)	What are aerosols? What are the effects of different aerosols on air pollution?	7M	CO5	L2

OR

10.	a)	Discuss about various types of plume behavior.	7M	CO5	L1
	b)	What are gaseous pollutants? Describe methods to control SO_x,	7M	CO5	L3

END