R-17

Code: 7G653

III B.Tech. I Semester Supplementary Examinations February 2022
Environmental Engineering-I
(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	Blooms Level

UNIT–I

| 1. | a) | Write briefly the historical background of water treatment and water supply engineering. | 7M | | |
| | b) | Explain in brief various factors that affect population growth. | 7M | | |

OR

| 2. | a) | Write a short note on provision for "fire demand" in water supply. | 7M | | |
| | b) | Write briefly the necessity of having a planned water supply schemes for a town. | 7M | | |

UNIT–II

| 3. | a) | Name the different layouts of distribution of water? | 7M | | |
| | b) | Write a note on common impurities found in water. | 7M | | |

OR

| 4. | a) | State the comparative merits & demerits of the following materials used in the convergence of water | 7M | | |
| | b) | Describe the different methods for bacteriological analysis of water. | 7M | | |

UNIT–III

| 5. | a) | Explain the purpose of aeration in water treatment. Explain its Limitations. | 7M | | |
| | b) | Explain with the help of diagrams, various methods of aeration | 7M | | |

OR

| 6. | a) | Describe various types of coagulation commonly used in water treatment | 10M | | |
| | b) | Name two disinfectants used in water treatment? | 4M | | |

UNIT–IV

| 7. | a) | Describe in order the various stages followed in the construction of sewers | 7M | | |
| | b) | Explain the flow variation in sewage. | 7M | | |

OR

| 8. | a) | Describe the following:
 i. Design of sewers
 ii. Shape of sewers
 iii. Sewer materials | 7M | | |
| | b) | Write the factors affecting the storm water. | 7M | | |

UNIT–V

| 9. | a) | Mention merits and demerits of imhoff tank? | 7M | | |
| | b) | Describe the necessity of maintaining constant velocity in grit channel? | 7M | | |

OR

| 10. | a) | Describe the four important tests that may be carried out to know the characteristics of sanitary sewage | 7M | | |
| | b) | Give the flow discussion for the activated Sludge process and describe the working of the activated sludge plant. | 7M | | |

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Code: 7BA51

III B.Tech. I Semester Supplementary Examinations Jan/Feb 2022
Managerial Economics and Financial Analysis
(Civil Engineering)

Max. Marks: 70   Time: 3 Hours
Answer *all five* units by choosing one question from each unit (5 x 14 = 70 Marks)
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UNIT–I

1. Define Managerial Economics. Write about the nature and scope of managerial economics. 14M

OR

2. What is opportunity cost? How it is calculated? Describe the significance of opportunity cost in allocation of resources by firms. 14M

UNIT–II

3. State the Law of Demand. What are the exceptions to it? 14M

OR

4. Define elasticity of demand. How different types of elasticity of demand are are measured? Explain their role in Business decisions. 14M

UNIT–III

5. Discuss briefly:
    a) Market skimming pricing 5M
    b) penetration pricing 5M
    c) Block pricing 4M

OR

6. Specify the merits and demerits of private sector Business organizations. 14M

UNIT–IV

7. Define Capital and discuss about the various sources of raising capital. 14M

OR

8. **Prepare journal entries and Ledger accounts from the following:**

    Jan 1 started Business with cash Rs.10, 000.

    Jan 3 Deposited into Bank Rs.15, 000
    Jan10 Purchased Machinery Rs.34, 000 from Jawahar.
    Jan 16 sold goods for cash Rs.52, 000
    Jan 20 received cash from Business Rs.12, 000 14M

UNIT–V

9. Define ratio. Write about the significance of Financial ratios in Business. 14M

OR

10. Write a short notes on:
    a) Current ratio
    b) Debt-equity ratio
    c) Operating ratio
    d) Quick ratio 14M

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III B.Tech. I Semester Supplementary Examinations February 2022
Design & Drawing of Reinforced Concrete Structures
(Civil Engineering)

Max. Marks: 70   Time: 3 Hours

PART-A
Answer *any one* questions carry's 28 marks

		Marks	CO	Blooms Level

1. A simply supported one-way slab of clear span 3.0 m is supported on masonry wall of thickness 350 mm. Slab is used for residential loads. Design & draw the details to a suitable scale. The materials are grade M20 and HYSD reinforcement of grade Fe415. Live load shall be 2 KN/m² — **28M CO4 BL6**

OR

2. Design a two-way slab for an office floor of size 3.5m x 4.5m with discontinuous and simply supported edges on all the sides with corners prevented from lifting and supporting a service live load of 4KN/m². Adopt M20 grade concrete and Fe415 grade steel. Sketch the reinforcement details. — **28M CO4 BL6**

PART-B
Answer *any three* questions
Each question carry's 14 marks

3. A rectangular beam 300mm wide and 400 mm deep up to the center of reinforcement, has to resist a factored moment of 45KN-m. Design the section. Use M20 grade concrete and Fe 415 steel. — **14M CO1 BL6**

4. a) Write the assumptions of Limit state of Design — **5M CO1 BL2**

   b) Derive the stress block parameters for a singly reinforced beam. — **9M CO1 BL2**

5. A simply supported rectangular beam of effective span 6m is having breadth 230mm and effective depth of 450mm. Tension steel provided is six numbers of 20mm and compression steel is two numbers of 16mm diameter bars. The beam is loaded by an uniformly distributed load of 20KN/m. Estimate the short term deflection — **14M CO2 BL6**

6. An R.C. Column 500mmx 400mm is subjected to an axial ultimate load of 2450KN and bent in single curvature about the minor axis M_y (top)= 90KNm and M_y(bottom)=120KNm as ultimate moments. If L_o=7.5m and L_e=5.50m on both axes, calculate the design moments for the column. — **14M CO4 BL6**

7. A rectangular simply supported beam of clear span 4.2 m is 340mmX540mm in cross section. It is reinforced with 4 bars of 20 mm diameter. Use M20 grade concrete and Fe415 steel. The effective cover is 40mm; calculate the short term and long-term deflections of the beam. — **14M CO2 BL6**

END

R-17

Code: 7G655

III B.Tech. I Semester Supplementary Examinations February 2022

Structural Analysis-II

(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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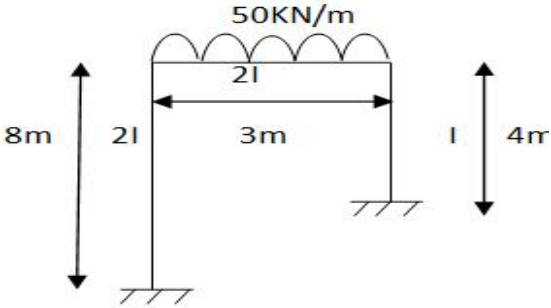
		Marks	CO	Blooms Level

UNIT–I

1. State and prove the Eddy's theorem? 14M 1 2

OR

2. Explain the effect of rib shortening on two hinged circular arch? 14M 1 2

UNIT–II

3. Analyze the given frame by using Moment distribution method and assume uniform flexural rigidity.

14M 2 3

OR

4. Breif the methodology of analyzing the beam by using slope deflection and moment distribution methods. 14M 2 2

UNIT–III

5. Analyze the given beam by using KANI'S method.
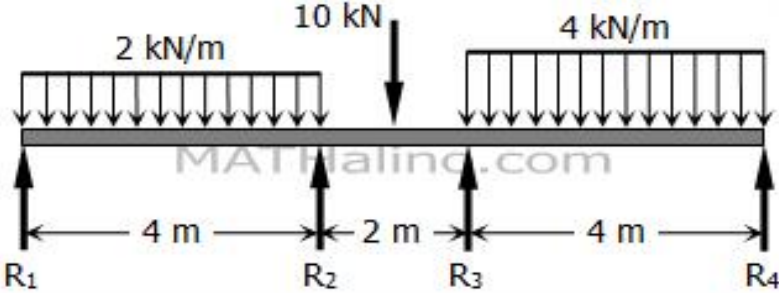
14M 3 3

OR

6.   Analyze the given beam by using KANI'S method.
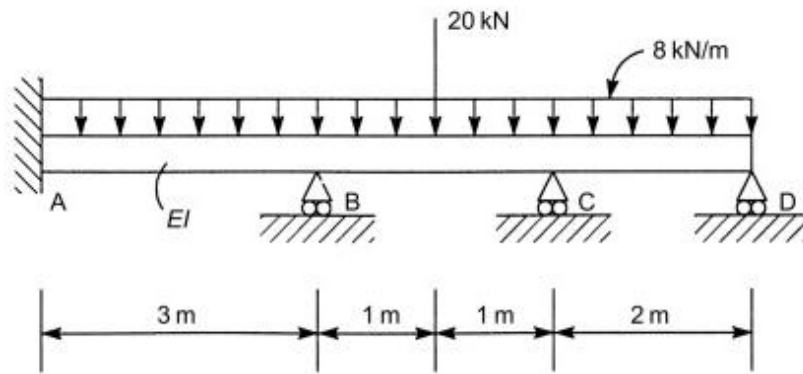
14M   3   3
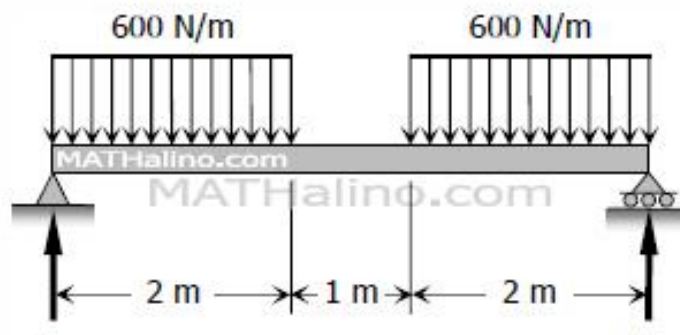
UNIT–IV

7.   Analyse the given beam by flexibility matrix method.

14M   4   3

OR
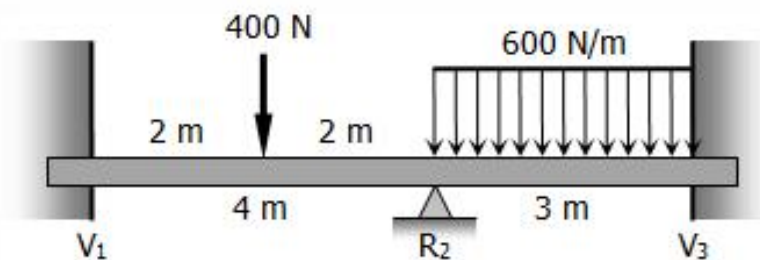
8.   Analyse the given simple beam by stiffness matrix method.

14M   4   3

UNIT–V

9.   Define shape factor? Derive the expression for shape factor of a triamgular section.   14M   5   3

OR

10.   Illustrate the theorems of plastic collapse? Explain the idealized stress strain diagram in plastic analysis?   14M   5   3

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III B.Tech. I Semester Supplementary Examinations February 2022
Water Resource Engineering-I
(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	Blooms Level

UNIT–I

1.	Describe hydrologic cycle with a neat sketch	14M	1	1

OR

2.	a)	List types of precipitation	7M	1	1
	b)	List forms of precipitation	7M	1	1

UNIT–II

3.	List out factors which are affecting evaporation	14M	2	1

OR

4.	Explain any one method to measure evaporation.	14M	2	2

UNIT–III

5.	a)	Define Unit Hydrograph	5M	3	1
	b)	List out limitations of Unit Hydrograph	9M	3	1

OR

6. Given below are the ordinates of a 6-h Unit Hydrograph for a catchment. Calculate ordinates of the DRH due to a rainfall excess of 3.5 cm occurring in 6 h.

Time (h)	3	9	15	24	30	36	42	48	54	60	69
UH ordinate (m^3/s)	25	85	160	160	110	60	36	25	16	8	0

14M   3   4

UNIT–IV

7.	Explain about radial flow to wells for unconfined aquifer	14M	4	2

OR

8.	Design a canal using Kennedy's theory for a discharge 50 m^3/s. Assume any other data.	14M	4	4

UNIT–V

9.	a)	Define duty and delta	7M	5	2
	b)	Find the delta for a crop when its duty 864 hectares/cumec on the field, the base period of this crop is 120 days.	7M	5	4

OR

10.	10 cumecs of water is delivered to a 32 hectare field, for 4 hours. Soil probing after the irrigation indicates that 0.3 m of water has been stored in the root zone. Compute the water application efficiency.	14M	5	4

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