

Hall Ticket Number :

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R-20

Code: 20A151T

III B.Tech. I Semester Supplementary Examinations June 2023

Basic Reinforced Concrete Design

(Civil Engineering)

Max. Marks: 70

Time: 3 Hours

Note: 1. Question Paper consists of two parts (**Part-A** and **Part-B**)

2. In Part-A, each question carries **28 marks**.

3. In Part-B, each question carries **14 marks**.

PART-A

Answer any one questions

Answer any one questions (1 X 28 = 28 Marks)

	Marks	CO	BL
1. a) Design a circular footing for a circular column of 450 mm diameter carrying an axial load of 1100 kN including the self-weight of the column. The bearing capacity of the soil is 250 kN/m ² . Use M25 grade concrete and Fe500 steel.	20M	5	4
b) Compare and contrast Working stress method and Limit state method of design.	8M	1	2
OR			
2. Design a one –way RCC slab for an office floor having to carry a load of 8000 N/m ² inclusive of its own weight over its effective span of 3.5 m simply supported at its ends. Assume M 20 grade concrete and Fe 415 steel. Sketch the reinforcement details	28M	3	4

PART-B

Answer any three questions from the following (3 x 14 = 42 Marks)

	Marks	CO	BL
3. A rectangular reinforced concrete beam, located inside a building in a coastal town, is simply supported on two masonry walls 230 mm thick and 6m apart (centre-to-centre). The beam has to carry, in addition to its own weight, a distributed live load of 10 kN/m and a dead load of 5 kN/m. Design the beam section for maximum moment at midspan. Assume M 20 grade concrete and Fe 415 steel.	14M	3	4
4. Determine the anchorage length of 4 nos. of 20mm diameter reinforcing bars going into the support of the simply supported beam of b = 300 mm, D= 600 mm, effective cover = 50 mm. The factored shear force V= 280 kN, width of the column support = 300 mm. Use M 20 concrete and Fe 415 steel.	14M	2	4
5. Design a R.C.C. column carrying a direct axial load of 500 kN and a bending moment of 6 kNm. Use M25 concrete and Fe 415 steel.	14M	5	3
6. Determine the area of tensile reinforcement required in a R.C.C. beam 225mm x 450 mm subjected to bending moment of 28125 Nm. Use M20 concrete and Fe415 steel.	14M	1	3
7. A beam 225 mm x 450 mm is simply supported over a span of 5 m. It is provided with 4 nos. 20 mm dia. HYSD bars as reinforcement. Calculate the maximum stresses developed in steel and concrete if the beam carries a u.d.l. of 9000 N/m including the self-weight of beam, m=13.	14M	1	3

*** End ***

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R-20

Code: 20A152T

III B.Tech. I Semester Supplementary Examinations June 2023

Environmental Engineering

(Civil Engineering)

Max. Marks: 70

Time: 3 Hours

Note: 1. Question Paper consists of two parts (**Part-A** and **Part-B**)

2. In Part-A, each question carries **Two mark**.

3. Answer **ALL** the questions in **Part-A** and **Part-B**

PART-A

(Compulsory question)

1. Answer **all** the following short answer questions (5 X 2 = 10M)
- | | | |
|--|-----|----|
| | CO | BL |
| a) State the objectives of public water supply scheme. | CO1 | L1 |
| b) State the drinking quality standards for any four physic-chemical parameters. | CO2 | L2 |
| c) Distinguish between carbonate and non-carbonate hardness | CO3 | L3 |
| d) Define design period. | CO4 | L1 |
| e) How do you identify leakage in pipelines? | CO5 | L1 |

PART-B

Answer **five** questions by choosing one question from each unit (5 x 12 = 60 Marks)

Marks CO BL

UNIT-I

2. a) List and explain various factors affecting per capita demand of water. 6M CO1 L1
- b) Enumerate and explain the characteristics of surface and ground water and state their environmental significance. 6M CO1 L3

OR

3. The Population of a town panchayat as per past census records are furnished below. Forecast the. population in the year 2031 and 2041 using the following methods:
- (i) Arithmetical increase method. (5)
- (ii) Geometrical increase method. (5)
- (iii) Incremental increase method. (4)

Census year	1941	1951	1961	1971
Population	35642	39487	46816	57859

Census year	1981	1991	2001	2011
Population	70458	78543	92131	116500

12M CO1 L1

UNIT-II

4. a) Discuss in brief various methods of water distribution? 6M CO2 L2
 b) Write a note on water borne diseases and their control. 6M CO2 L1

OR

5. a) Define Conveyance of water? Distinguish between the Gravity and pumping methods? 6M CO2 L2
 b) Explain the Intake works for collection of surface water? 6M CO2 L2

UNIT-III

6. a) Explain the process, requirements and methods of disinfection of water. 6M CO3 L2
 b) Discuss Chlorination. State its advantages and precautions. Also discuss residual chlorine and chlorine demand. 6M CO3 L2

OR

7. With the help of the diagram, explain the process of Rapid sand filter. 12M CO3 L2

UNIT-IV

8. Briefly explain the various factors to be considered in the design of sewerage system. 12M CO3 L2

OR

9. Explain the factors affecting the estimation of sanitary sewerage flow. 12M CO3 L2

UNIT-V

10. Discuss the design aspects of sedimentation tanks in details 12M CO5 L2

OR

11. Explain the function of septic tank with a neat sketch. Also discuss the design criteria. 12M CO5 L2

*** End ***

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R-20

Code: 20AE5AT

III B.Tech. I Semester Supplementary Examinations June 2023

Human Resource Management

(Common to CE, EEE & ECE)

Max. Marks: 70

Time: 3 Hours

- Note: 1. Question Paper consists of two parts (**Part-A** and **Part-B**)
2. In Part-A, each question carries **Two marks**.
3. Answer **ALL** the questions in **Part-A** and **Part-B**

PART-A

(Compulsory question)

- | | CO | BL |
|---|----|----|
| 1. Answer all the following short answer questions (5 X 2 = 10M) | | |
| a) Define HRM. | 1 | 1 |
| b) Define Job Design. | 1 | 1 |
| c) Define Placement. | 1 | 1 |
| d) List out the need for training employees. | 1 | 1 |
| e) Define Compensation. | 1 | 1 |

PART-B

Answer five questions by choosing one question from each unit (5 x 12 = 60 Marks)

- | | Marks | CO | BL |
|--|-------|----|----|
| UNIT-I | | | |
| 2. Discuss in detail, the managerial and operative functions of HRM. | 12M | 1 | 2 |
| OR | | | |
| 3. Describe the nature, significance and scope of HRM. | 12M | 1 | 2 |
| UNIT-II | | | |
| 4. Write a detailed note on the various factors effecting human resource planning and the various hindrances to effective HRP. | 12M | 2 | 2 |
| OR | | | |
| 5. Describe in detail, the significance and process involved in job analysis. | 12M | 2 | 2 |
| UNIT-III | | | |
| 6. Discuss in detail, the various factors governing recruitment. | 12M | 3 | 2 |
| OR | | | |
| 7. Discuss in detail, the various steps in the selection process. | 12M | 3 | 2 |
| UNIT-IV | | | |
| 8. Describe in detail, the various stages in career development. | 12M | 4 | 2 |
| OR | | | |
| 9. Discuss in detail, the various methods of off the job training citing examples as applicable. | 12M | 4 | 2 |
| UNIT-V | | | |
| 10. Discuss in detail, the various methods of performance appraisal. | 12M | 5 | 2 |
| OR | | | |
| 11. Discuss in detail the process of grievance redressal in organizations. | 12M | 5 | 2 |

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R-20

Code: 20A35FT

III B.Tech. I Semester Supplementary Examinations June 2023

Industrial Management & Entrepreneurship

(Civil Engineering)

Max. Marks: 70

Time: 3 Hours

Note: 1. Question Paper consists of two parts (**Part-A** and **Part-B**)2. In Part-A, each question carries **Two marks**.3. Answer **ALL** the questions in **Part-A** and **Part-B****PART-A**

(Compulsory question)

- | | | |
|---|----|----|
| 1. Answer all the following short answer questions (5 X 2 = 10M) | CO | BL |
| a) List out the Salient Features of Sole Proprietorship. | 1 | 1 |
| b) Explain Fixed and Working Capital | 2 | 2 |
| c) Discuss Project Management. | 3 | 2 |
| d) Differentiate between Recruitment and Selection. | 4 | 2 |
| e) Demonstrate the Qualities of an Entrepreneur. | 5 | 3 |

PART-BAnswer **five** questions by choosing one question from each unit (5 x 12 = 60 Marks)

- | | Marks | CO | BL | |
|---|-------|----|----|---------------|
| <table border="1" style="display: inline-table; margin: 0 auto;"><tr><td style="padding: 2px 10px;">UNIT-I</td></tr></table> | | | | UNIT-I |
| UNIT-I | | | | |
| 2. a) Mention and analyze the Prominent Channels of Distribution. | 6M | 1 | 4 | |
| b) Explain the Functions of Management. | 6M | 1 | 2 | |

OR

- | | | | |
|---|----|---|---|
| 3. a) Discuss various Stages in Product Life Cycle. | 6M | 1 | 2 |
| b) Describe the Merits and Demerits of Partnership form of Business Organization. | 6M | 1 | 1 |

UNIT-II

- | | | | |
|--|----|---|---|
| 4. a) Explain the factors determining Working Capital requirements of a manufacturing unit. | 4M | 2 | 2 |
| b) A company has at hand two proposals for consideration (M and N). The cost of the proposals in both the cases is Rs. 5,00,000 each. A discount factor of 12% may be used to evaluate the proposals. Cash inflows after tax are as under. | | | |

	Proposal M (Rs.)	Proposal N (Rs.)
1 year	1,50,000	50,000
2 year	2,00,000	1,50,000
3 year	2,50,000	2,00,000
4 year	1,50,000	3,00,000
5 year	1,00,000	2,00,000

- | | | | |
|--|----|---|---|
| Which one will you recommend under Net Present Value Method? | 8M | 2 | 3 |
|--|----|---|---|

OR

5. a) What is the importance of Capital Budgeting? Explain the basic steps involved in evaluating Capital Budget Proposals. 8M 2 2
- b) What is meant by Discounting and Time Value of Money? How is it useful in Capital Budgeting? 4M 2 2

UNIT-III

6. a) How does Material Requirement Planning (MRP) work? 6M 3 1
- b) Explain various costs associated with the Inventories. 6M 3 2

OR

7. a) Draw the Network Diagram, identify Critical Path on the diagram and calculate the project duration for the following activities.

Activity	1-2	2-3	2-4	3-5	4-5	5-6
Duration in Days	4	6	4	5	3	2
Activity Description	A	B	C	D	E	F

- 8M 3 3
- b) Explain the steps involved in Project Crashing. 4M 3 2

UNIT-IV

8. a) Discuss the Traditional methods of Performance Appraisal in detail. 6M 4 1
- b) Differentiate between Training and Development. 6M 4 2

OR

9. a) State the essential characteristics of sound HR Policy. 6M 4 4
- b) What are the different methods of recruiting employees? 6M 4 1

UNIT-V

10. a) Explain the Role of Communication in Entrepreneurship. 6M 5 1
- b) Outline the steps in Process Design and Plant Design. 6M 5 4

OR

11. a) Describe the Characteristics of Successful Entrepreneurs. 6M 5 2
- b) Discuss the Significance of Entrepreneurial Development Objectives. 6M 5 2

*** End ***

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R-20

Code: 20A153T

III B.Tech. I Semester Supplementary Examinations June 2023

Water Resource Engineering

(Civil Engineering)

Max. Marks: 70

Time: 3 Hours

- Note: 1. Question Paper consists of two parts (**Part-A** and **Part-B**)
 2. In Part-A, each question carries **Two marks**.
 3. Answer **ALL** the questions in **Part-A** and **Part-B**

PART-A

(Compulsory question)

- | | | |
|---|-----|----|
| 1. Answer all the following short answer questions (5 X 2 = 10M) | CO | BL |
| a) Brief the applications of Hydrology. | CO1 | L1 |
| b) Define Storage Coefficient. | CO2 | L3 |
| c) What is Irrigation? | CO3 | L3 |
| d) Write a note on Infiltration Gallery. | CO4 | L2 |
| e) What is dead storage and live storage? | CO5 | L1 |

PART-B

Answer *five* questions by choosing one question from each unit (5 x 12 = 60 Marks)

Marks CO BL

UNIT-I

- | | | | |
|--|----|-----|----|
| 2. a) Discuss Horton' Hydrological cycle with diagram. | 6M | CO1 | L1 |
| b) Explain types of Rain gauge stations. | 6M | CO1 | L2 |

OR

- | | | | |
|--|----|-----|----|
| 3. a) Explain different methods of measurement of Evaporation. | 6M | CO1 | L1 |
| b) The Rainfall rates for successive 30 minutes interval upto 4 hours are given below. If the Surface Runoff is 3.6 cm. Determine W-index and pie index. | | | |

Time in min	0	30	60	90	120	150	180	210	240
Rainfall Intensity in cm/hr	0	1.3	2.8	4.1	3.9	2.8	2.0	1.8	0.9

6M CO1 L1

UNIT-II

- | | | | |
|---|----|-----|----|
| 4. a) Explain uses and limitations of Unit Hydrograph. | 6M | CO2 | L2 |
| b) What is S-Hydrograph? Explain Derivation of S-Hydrograph from Unit Hydrograph. | 6M | CO2 | L2 |

OR

5. a) What is an Aquifer? Discuss types of Aquifer with diagram. 6M CO2 L1
 b) Describe Aquifer parameters. 6M CO2 L2

UNIT-III

6. a) What is Irrigation? Explain advantages and ill effects of irrigation. 6M CO3 L2
 b) Define duty. Discuss factors affecting Duty. 6M CO3 L2

OR

7. a) Write the procedure for the design of Canal using Kennedy's Theory. 6M CO3 L2
 b) Explain types of Dams and it's Merits and Demerits. 6M CO3 L3

UNIT-IV

8. a) Discuss feasibility of Dam site in fractured basement. 6M CO4 L2
 b) What is Spillway? Discuss types of Spillways. 6M CO4 L3

OR

9. a) Explain Causes and failure of Earthen dam. 6M CO4 L2
 b) Enumerate assumptions consider for Seepage Analysis. 6M CO4 L2

UNIT-V

10. a) The Slope of Channel in Alluvium is $S=1/5000$, Lacey' silt factor=0.9 and channel side slope=1/2:1. Find the channel section and maximum discharge which can be allowed to flow in it. 6M CO5 L3
 b) Discuss remedial measures for silt control at Headwork. 6M CO5 L3

OR

11. a) Describe Canal escapes and types. 6M CO5 L3
 b) Discuss Necessity and Advantages of lining of Canal. 6M CO5 L3

*** End ***