Hall Ticket Number :										

R-20

Code: 20AE5AT

III B.Tech. I Semester Regular Examinations Dec 2022/Jan 2023

Human Resource Management

(Common to CE, EEE & ECE)

Max. Marks: 70 Time: 3 Hours

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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)

		CO	BL
1.	Answer all the following short answer questions (5 X 2 = 10M)		
a)	List the functions of HRM.	1	1
b)	Define Human Resources Information Systems.	1	1
c)	Define Selection.	1	1
d)	Define Career Development.	1	1
e)	Define Performance Appraisal.	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 competitive challenges influencing HRM.	12M	1	2
	OR			
3.	Describe in detail, the ethical aspects of HRM.	12M	1	2
	UNIT–II			
4.	Discuss in detail, the significance of Human Resources Planning with specific reference to the IT Industry.	12M	2	2
	OR			
5.	Discuss in detail, the various Factors affecting Job Design and the approaches to Job design.	12M	2	2
	UNIT–III			
6.	Discuss in detail, the process and sources of recruitment.	12M	3	2
	OR			
7.	Discuss in detail, the various barriers to effective selection.	12M	3	2
	UNIT–IV			
8.	Discuss in detail the various methods of training.	12M	4	2
	OR			
9.	Describe the various impediments that can be a barrier for effective training.	12M	4	2
	UNIT–V			
10.	Describe in detail, the concept of wage policy in the Indian Context.	12M	5	2
	OR			
11.	Discuss in detail, the importance and approaches to effective Industrial Relations.	12M	5	2

*** End ***

Hall Ticket Number :										

R-20

Code: 20A35FT

III B.Tech. I Semester Regular Examinations Dec 2022/Jan 2023

Industrial Management & Entrepreneurship

(Civil Engineering)

Max. Marks: 70 Time: 3 Hours

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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)

		CO	BL
1. Answer ***all*** the following short answer questions	(5 X 2 = 10M)		
a) Define Management.		1	1
b) Explain the concept of Time Value of Money.		2	2
c) What is ABC Analysis?		3	1
d) Outline the Q*ualities* of Leadership.		4	4
e) Examine the steps in Plant Design.		5	3

PART-B

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

		Marks	CO	BL
UNIT–I				
2. a)	Explain Henri Fayol ‘s 14 Principles of Management.	6M	1	2
b)	Outline various Functions of Marketing.	6M	1	4
OR				
3. a)	What are the Forms of Business Organizations and describe Joint Stock Company in detail?	6M	1	2
b)	Describe 4 P’s of Marketing or Marketing Mix.	6M	1	1
UNIT–II				
4. a)	A business firm is thinking of choosing the right machines for their purpose after financial evaluation of the proposal. The initial cost and the net cash flow over years. (Income less running expenses but not depreciation) to the business firm have been calculated for each machine as follows			

		Machine X(Rs.)	**Machine Y (Rs.)**
Initial Cost		20000	28000
Net cash flow	1 year	8000	10000
	2 year	12000	12000
	3 year	9000	12000
	4 year	7000	6000
	5 year	6000	6000

Choose the machine based on

(i) Payback Period (ii) Accounting Rate of Return — 8M — 2 — 3

	b)	Explain Factors determining Working Capital and Fixed Capital requirements.	4M	2	2
		OR			
5.	a)	What is Capital Budgeting? Demonstrate its Significance for a Firm.	6M	2	3
	b)	What is Depreciation? Explain the Straight-Line Depreciation Method.	6M	2	2
		UNIT–III			
6.	a)	Explain different types of Production Systems.	6M	3	2
	b)	Describe the rules of constructing Network Diagram.	6M	3	1
		OR			
7.	a)	The annual demand for an item is 3200 parts. The unit cost is Rs.6 and the inventory carrying charges are estimated as 25% per annum. If the cost of one procurement is Rs. 150, find: i)Economic Order Quantity (EOQ) ii)Time between two consecutive orders iii)Number of orders per year iv)Optimal Total Cost	6M	3	3
	b)	Discuss the Functions of Production Planning and Control.	6M	3	2
		UNIT–IV			
8.	a)	Discuss the Functions of Human Resource Management with relevant examples.	6M	4	2
	b)	Explain the Importance of HRM in Organizations.	6M	4	2
		OR			
9.	a)	Discuss the Importance of Human Resource Planning.	6M	4	2
	b)	What is Recruitment? Explain different Sources of Recruitment.	6M	4	2
		UNIT–V			
10.	a)	Explain the Significance of Entrepreneurs in the Economic Development of any Country.	6M	5	2
	b)	Discuss the Factors affecting growth of Entrepreneurship in India.	6M	5	2
		OR			
11.	a)	Define Entrepreneurship. Discuss the need of Training for Enterprises.	6M	5	1
	b)	Explain the Nature and Characteristics of Entrepreneur.	6M	5	2

*** End ***

Hall Ticket Number :										

R-20

Code: 20A35ET

III B.Tech. I Semester Regular Examinations Dec 2022/Jan 2023

Non-Conventional Sources of Energy

(Civil Engineering)

Max. Marks: 70 Time: 3 Hours

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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)	Define extra-terrestrial solar radiations?	CO1	L1
b)	What are the classification of concentrating collectors?	CO2	L2
c)	What is the basic principle of wind energy conversion?	CO3	L1
d)	Classify various types of Geothermal energy systems?	CO4	L2
e)	Write the principle of Direct energy conversion?	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.		What is solar constant? What is the difference between extraterrestrial and terrestrial solar radiations?	12M	CO1	L2
		OR			
3.		Explain how the solar radiation in measured and data is obtained?	12M	CO1	L2
		UNIT–II			
4.		Compare between the concentrating collectors and flat plate collectors?	12M	CO2	L3
		OR			
5.		Explain the working of a flat plate collector with their thermal analysis?	12M	CO2	L2
		UNIT–III			
6.		Derive the expression for maximum wind power extracted using Betz criterion?	12M	CO3	L3
		OR			
7.		What are the Biomass conversion technologies? Draw a schematic diagram to explain various conversion technologies and products?	12M	CO3	L2
		UNIT–IV			
8.		What is the principle of geothermal power generation? What are the limitations of harnessing geothermal energy?	12M	CO4	L2
		OR			
9.	a)	Discuss the special applications of OTEC plants?	6M	CO4	L3
	b)	How can ocean temperature differences be estimated?	6M	CO4	L2
		UNIT–V			
10.		Explain the a) Selection of fuels b) Carnot cycle and its importance	12M	CO5	L3
		OR			
11.	a)	Explain the necessity of direct energy conversion?	6M	CO5	L2
	b)	What are fuel cells and explain the operating principle of it?	6M	CO5	L2

*** End ***

Hall Ticket Number :										

R-20

Code: 20A15CT

III B.Tech. I Semester Regular Examinations Dec 2022/Jan 2023

Remote Sensing and GIS

(Civil Engineering)

Max. Marks: 70 Time: 3 Hours

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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)	Define scale? What is the scale of photograph of 1 mm on photograph represent 25 m on the ground?		CO1	L3
b)	What is a geo-stationary satellite?		CO2	L1
c)	What is an attribute?		CO3	L1
d)	Mention few limitations of satellite remote sensing.		CO5	L2
e)	Define DEM and DTM?		CO4	L1

PART-B

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

			Marks	CO	BL
		UNIT–I			
2.		Describe the procedure for parallax measurement for height.	12M	CO1	L3
		OR			
3.	a)	What are the advantages of aerial photography?	6M	CO1	L1
	b)	Explain the various types of aerial photographs	6M	CO1	L2
		UNIT–II			
4.	a)	What is orbit of satellite? Explain geosynchronous orbit and sun synchronous orbit.	6M	CO2	L2
	b)	Write detailed note on atmospheric windows and absorption bands.	6M	CO2	L2
		OR			
5.	a)	Write detailed note on scattering.	6M	CO2	L2
	b)	Explain about along track scanning with a neat sketch.	6M	CO2	L2

UNIT–III

6.	a)	What do you understand by spatial data and attribute data? How they are integrated to make a GIS?	6M	CO3	L2
	b)	Differentiate between layer-based GIS and feature based GIS.	6M	CO3	L2

OR

7.	a)	Explain the GIS work flow.	6M	CO3	L2
	b)	What is spaghetti model? Explain.	6M	CO3	L2

UNIT–IV

8.	a)	Write short note on reservoir sedimentation	6M	CO5	L1
	b)	Explain the Surface water mapping and inventory using RS and GIS.	6M	CO5	L2

OR

9.		Explain briefly about Ground Water Targeting by using RS & GIS applications.	12M	CO5	L3

UNIT–V

10.		What is buffering? Explain in detail with sketches.	12M	CO4	L2

OR

11.		Explain various Computational Analysis Methods in GIS.	12M	CO4	L3

*** End ***

Hall Ticket Number :										

R-20

Code: 20A15AT

III B.Tech. I Semester Regular Examinations Dec 2022/Jan 2023

Sustainable Construction Methods

(Civil Engineering)

Max. Marks: 70 Time: 3 Hours

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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)

			CO	BL
1.	Answer ***all*** the following short answer questions	(5 X 2 = 10M)		
a)	What is meant by green building?		1	L1
b)	Define- Optimum energy efficiency in green buildings.		2	L1
c)	Briefly explain- Energy demand in buildings.		3	L1
d)	Write the need for pre cooling of fresh air.		4	L1
e)	How will you achieve waste reduction during construction?		5	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)	Explain the necessity of green buildings.	6M	1	L1
	b)	Write the advantages of green buildings.	6M	1	L1
		OR			
3.		Discuss about the equipment's used in green building constructions in India.	12M	1	L2
		UNIT–II			
4.		Discuss the green building opportunities and their benefits in India.	12M	2	L2
		OR			
5.		Describe the procedure involved in the typical energy saving approach in buildings and its applications.	12M	2	L2
		UNIT–III			
6.		Explain various Onsite sources and sinks in green buildings.	12M	3	L2
		OR			
7.		Discuss the advantages of eco friendly captive power generation for factory.	12M	3	L1
		UNIT–IV			
8.		Explain the design philosophy of a HVAC system and write about energy modelling.	12M	4	L2
		OR			
9.		Describe the factors governing the selection of cooling towers and air handling units.	12M	4	L1
		UNIT–V			
10.		Compare the properties of materials with recycled content and new materials.	12M	5	L2
		OR			
11.		Discuss about indoor environment quality and occupational health in detail with a suitable example.	12M	5	L2

** End***

Hall Ticket Number :										

R-20

Code: 20A153T

III B.Tech. I Semester Regular Examinations Dec 2022/Jan 2023

Water Resource Engineering

(Civil Engineering)

Max. Marks: 70 Time: 3 Hours

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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) What are the different forms of Precipitation?	CO1	L1
b) What is Perched Aquifer?	CO2	L3
c) Define Base period and relation between Duty and Delta.	CO3	L3
d) List out causes of failures of earth dams	CO4	L2
e) Define aqueduct and siphon aqueduct	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)	Describe methods of estimating mean rainfall of a Catchment.	6M	CO1	L1
b)	Explain different methods of representing Rainfall data.	6M	CO1	L2
OR				
3. a)	What is Infiltration? Discuss factors affecting Infiltration.	6M	CO1	L1
b).	Explain abstractions from Precipitation	6M	CO1	L1
UNIT–II				
4. a)	Define Hydrograph. Explain components of Hydrograph.	6M	CO2	L2
b)	Explain procedure for computation of Direct Runoff from Storm hydrograph	6M	CO2	L2
OR				
5. a)	Enumerate Vertical distribution of Sub-surface water.	6M	CO2	L1
b)	Explain Darcy's law and it's limitations.	6M	CO2	L2
UNIT–III				
6. a)	Explain different types of Irrigation.	6M	CO3	L2

	b)	The gross command area for a distributary is 2000 ha. The intensity of irrigation or wheat is 50% and that for gram is 30%. Gram has a kor period of 18 days and a kor depth of 12 cm and Wheat has a kor period of 15 days and a kor depth of 15 cm. Determine the discharge required in the distributary.	6M	CO3	L2

OR

7.	a)	Explain feasibility conditions for selection of site for reservoir.	6M	CO3	L2
	b)	What is Consumptive use? Explain estimation of Consumptive use	6M	CO3	L3

UNIT–IV

8.	a)	Explain Advantages and Disadvantages of Gravity Dam.	6M	CO4	L2
	b)	Discuss requisite for selection of a good site for Dam.	6M	CO4	L3

OR

9.	a)	Explain the different measures for control of seepage in earth dams	6M	CO4	L2
	b)	Explain criteria considered for safe design of a Earthen Dam.	6M	CO4	L2

UNIT–V

10.	a)	Describe Diversion headwork and it's types.	6M	CO5	L3
	b)	Explain aqueduct and siphon aqueduct and super passage with a neat sketch	6M	CO5	L3

OR

11.	a)	Explain classification of Falls.	6M	CO5	L3
	b)	Enumerate selection criteria for suitable type of cross drain work.	6M	CO5	L3

*** End ***

Hall Ticket Number :										

R-20

Code: 20A151T

III B.Tech. I Semester Regular Examinations Dec 2022 / Jan 2023

Basic Reinforced Concrete Design

(Civil Engineering)

Max. Marks: 70 Time: 3 Hours

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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.**

Assume any suitable data if missing.

PART-A

Answer *any one* questions

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

		Marks	CO	BL
1.	Design a rectangular RC column of size 400 mm x 500 mm carrying a factored axial load of 2000 kN and factored moments of 130 kNm (about the major principal axis) and 120 kNm (about the minor principal axis). The unsupported length of the column is 3.2 m. Use M25 grade concrete and Fe415 grade steel. Sketch the reinforcement details.	28M	5	4

OR

2.	Design a simply supported slab to cover room of internal dimensions 4 m x 5 m and 230 mm thick brick walls all around. Assume a live load of 4 kN/m^2. Assume that the slab corners are prevented to lift up. Use M25 grade concrete and Fe415 grade 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 simply supported beam of effective span 8 m subjected to an imposed load of 35kN/m. The depth of the beam is restricted to 700 mm. determine the reinforcement of beam. Use M20 concrete and Fe415 steel.	14M	3	4
4.	A tee beam slab floor of an office comprises of a slab 150 mm thick spanning between ribs spaced at 3 m centers. The effective span of the beam is 8 m. Live load on floor is 4 kN/m^2. Using M-20 grade concrete and Fe-415 HYSD bars, design one of the intermediate tee beams.	14M	3	4
5.	A rectangular R.C. beam is 300 mm wide and 450 mm deep (overall) and is reinforced with 3 bars 16 mm dia. on tension side. The beam cross section is subjected to a maximum bending moment of 30 kNm and a maximum shear force of 30 kN. In addition, the beam cross section is subjected to a torsional moment of 36 kNm. Calculate the reinforcement for torsion. Use M 20 concrete and Fe 415 steel.	14M	2	3
6.	Design a RC circular footing for a circular column of 400 mm diameter supporting a factored axial load of 900 kN. Adopt the SBC of the soil as 220 kN/m^2. Use M20 grade concrete and Fe415 grade steel.	14M	5	3
7. a)	An RC beam 300 mm x 700 mm is reinforced with 3–20 mm diameter bars placed at 50 mm from the underside of the beam. The maximum stresses are not to exceed 7 MPa for concrete and 150 MPa for steel. Find the safely distributed load, the beam can carry by working stress method. The span of the beam is 7 m.	8M	1	3
b)	Illustrate the following terms: (i) Modular ratio, (ii) Serviceability condition of design, and (iii) Ultimate strength of RC sections	6M	1	2

*** End ***

Hall Ticket Number :										

R-20

Code: 20A152T

III B.Tech. I Semester Regular Examinations Dec 2022/Jan 2023

Environmental Engineering

(Civil Engineering)

Max. Marks: 70 Time: 3 Hours

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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)

		CO	BL
1.	Answer ***all*** the following short answer questions (5 X 2 = 10M)		
a)	State the sources of wastewater.	CO1	L1
b)	Define the water borne diseases.	CO2	L1
c)	Define break point chlorination.	CO3	L1
d)	What are the advantages of using a circular section for sewers?	CO4	L2
e)	Differentiate between activated sludge process and trickling filter process of sewage treatment.	CO5	L2

PART-B

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

		Marks	CO	BL
	UNIT–I			
2. a)	Explain the factors affecting the per capita demand of a town.	6M	CO1	L2
b)	Derive an expression for determining the discharge from an unconfined aquifer under steady flow conditions.	6M	CO1	L6
	OR			
3. a)	Explain the necessities and components of a planned water supply scheme?	6M	CO1	L2
b)	Describe the importance of understanding the water supply system?	6M	CO1	L2
	UNIT–II			
4.	Describe various methods of removing excess iron and manganese from ground water.	12M	CO2	L2
	OR			
5. a)	Explain the Intake works for collection of surface water	6M	CO2	L2
b)	Define Conveyance of water? Distinguish between the Gravity and pumping methods?	6M	CO2	L1

UNIT–III

6. Explain the objectives of water treatment with water treatment plant flow chart showing unit operations and processes. 12M CO3 L2

OR

7. a) Write the difference between coagulation and flocculation? 6M CO3 L1

   b) Explain in detail about the different methods of disinfection? 6M CO3 L2

UNIT–IV

8. a) Explain briefly different characteristics and composition of sewage. 6M CO4 L2

   b) Explain various factors influencing Dry weather flow. 6M CO4 L2

OR

9. With the help of neat sketches, explain the working of any two types of sewer appurtenances. 12M CO4 L1

UNIT–V

10. Design a high rate trickling filter from the following data:

Design flow	:	40 ML/d
Recirculation ratio	:	1.5
BOD of raw sewage	:	250 mg/L
Desirable effluent BOD	:	20 mg/L

12M CO5 L6

OR

11. Explain the basic operations involved in activated sludge process with the help of a flow diagram. 12M CO5 L2

*** End ***