Hall Ticket Number :										

R-17

Code: 7G674

IV B.Tech. I Semester Regular Examinations February 2021

Disaster Management

(Common to All Branches)

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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			Marks	CO	Blooms Level
		UNIT–I			
1.	a)	Explain briefly about how hazards can become a disaster and Summarize the concept of disaster.	8M	CO1	L2
	b)	Illustrate the differences between hazard and disaster.	6M	CO1	L2
		OR			
2.		Explain the following terms in an uneducated person: a) Disaster b) Risk c) Vulnerability d) Hazard	14M	CO1	L1
		UNIT–II			
3.	a)	Illustrate the effects of the volcanoes on the environment. List out various materials comes out from volcanic eruptions.	7M	CO2	L3
	b)	State epicenter and focus? Create with a neat diagram? Based on depth how many type types of earthquake are classified.	7M	CO2	L3
		OR			
4.	a)	Write a short note on earthquakes. List out various materials comes out from volcanic eruptions	7M	CO2	L5
	b)	Demonstrate natural disaster and manmade disaster, what are the effects of disasters on environmental health facilities and services.	7M	CO2	L5
		UNIT–III			
5.	a)	Discuss the role and functions of a Disaster Manager, health effects of global environmental change.	7M	CO3	L3
	b)	Explain urban disasters and climate change with suitable examples.	7M	CO3	L3
		OR			
6.		List different disaster impacts and explain any four with the help of a case study.	14M	CO3	L2
		UNIT–IV			
7.	a)	What are the steps involved in risk communication?	7M	CO4	L4
	b)	What are the drought control measures adopted across the globe?	7M	CO4	L4
		OR			
8.	a)	Illustrate various mitigation measures to be taken at the time of earthquakes.	7M	CO4	L3
	b)	Elaborate the activities of panchayat raj institutions during disaster.	7M	CO4	L3
		UNIT–V			
9.	a)	Discuss the important steps in relief distribution.	5M	CO5	L3
	b)	Sustainability, comment on this term and generally write how you can apply sustainability in your daily life with at least 5 examples.	9M	CO5	L3
		OR			
10.	a)	Identify the different types of rehabilitation post disaster.	6M	CO5	L5
	b)	Discuss about the positive and negative impacts of construction of dams.	8M	CO5	L5

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Hall Ticket Number :										

R-17

Code: 7G273

IV B.Tech. I Semester Regular Examinations February 2021

Distribution of Electric Power

(Electrical and Electronics 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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			Marks	CO	Blooms Level
		UNIT–I			
1.	a)	What is load curve and load duration curve? Explain their importance in distribution networks	7M	01	02
	b)	Explain load modeling and its characteristics?	7M	01	03
		OR			
2.		Define the following terms a) Maximum demand b) coincident factor c) Plant factor d) contribution factor e) diversity factor	14M	01	02
		UNIT–II			
3.		A 1-Φ distributor 2Km long supplies a load of 120A at 0.8pf lag at its far end and a load of 80A at 0.9pf lag at its midpoint. Both the power factors are referred to the voltage at the far end. The impedance per Km for go & return is (0.05+j0.1)Ω/Km. If the voltage at the far end is maintained at 230V then determine the following (i) Voltage at the sending end (ii) Phase angle difference between the voltages at both the ends	14M	02	02
		OR			
4.	a)	Paraphrase the objective of distribution system protection.	7M	02	02
	b)	Explain in detail types of faults and fault calculation.	7M	02	02
		UNIT–III			
5.		An industrial area near a city is found to have a load density 0.5 MVA/km^2. The total area was to be located between a rectangular strip of 8 km × 4 km. Determine suitable number of 33/11 kV substations, their capacity and feeder length. The loads are served by 11-kV feeders.	14M	03	03
		OR			
6.	a)	How is the design of distribution system done? Discuss the factors that contribute for design.	4M	03	02
	b)	How do you analyze the distribution substation areas shaped as (i) square, (ii) hexagonal, and (iii) n sided polygon?	10M	03	02
		UNIT–IV			
7.	a)	Enumerate methods of power factor improvement. Explain any one method in detail.	7M	04	02
	b)	Write a short note on necessity of voltage control in distribution systems.	7M	04	02
		OR			
8.		Write a short note on i) Power Factor Correction, ii) Economic Justification for Power Factor Correction and iii) Procedure to determine the best capacitor location	14M	04	02
		UNIT–V			
9.	a)	What is Distribution planning and explain factors affecting system planning.	7M	05	02
	b)	Paraphrase the importance of Load Forecasting. Explain any one method of load forecasting in detail.	7M	05	02
		OR			
10.	a)	Explain in detail distribution system planning model	7M	05	02
	b)	Give insight on Present Distribution System Planning Techniques	7M	05	02

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Hall Ticket Number :										

R-17

Code: 7GA71

IV B.Tech. I Semester Regular Examinations February 2021

Human Resource Management

(Common to All Branches)

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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			Marks	CO	Blooms Level
		UNIT–I			
1.	a)	Define the nature and scope of Human Resource Management	7M	1, 2	1
	b)	What are the different functions of HRM	7M	1, 2	4
		OR			
2.	a)	What is HRM? Explain about Competitive Challenges influencing HRM.	7M	1, 2	4
	b)	Differentiate Personnel Management and HRM	7M	1, 2	5
		UNIT–II			
3.	a)	Define HRP. Explain HRP need and importance in an organization.	7M	6, 7, 8	1
	b)	Explain about different Barriers to HRP.	7M	6, 7, 8	2
		OR			
4.	a)	Define job analysis. Explain the different methods of JE and its process	7M	6, 7, 8	1
	b)	Define Job Design and its importance in an organization.	7M	6, 7, 8	1
		UNIT–III			
5.	a)	If you are the HR Manager, what type of recruiting methods is using to recruit for Manufacturing and for services industry?	7M	1, 4,	2
	b)	Define process of recruitment.	7M	1, 4,	1
		OR			
6.	a)	What is recruitment? List out the process of recruitment.	7M	1, 4,	4
	b)	"A well-thought-out orientation program is essential for all new employees, whether they have experience or not". Explain why you agree or disagree with the above statement.	7M	1, 4,	2
		UNIT–IV			
7.	a)	List and briefly explain about Training Methods	7M	4, 5	1
	b)	What is the need of training an employee in an organization?	7M	4, 5	4
		OR			
8.	a)	Is an employee should train. If yes list out the advantages and disadvantages of training.	7M	4, 5	4
	b)	Define different career stages.	7M	4, 5	1
		UNIT–V			
9.	a)	Define what Employee Compensation is and list out the factors influencing Employee Compensation.	7M	3, 4, 5	1
	b)	Explain the need of IR with respect to HRM	7M	3, 4, 5	2
		OR			
10.	a)	Describe the pros and cons of any four Performance Appraisal tools.	7M	3, 4, 5	2
	b)	Explain different methods of Performance Appraisal.	7M	3, 4, 5	2

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Hall Ticket Number :										

R-17

Code: 7G576

IV B.Tech. I Semester Regular Examinations February 2021

Management Science

(Electrical and Electronics 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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			Marks	CO	Blooms Level
		UNIT–I			
1.	a)	Describe the Functions and Features of Management.	8M	C1	L5
	b)	Compare and contrast features of any two types of Organization Structures.	6M	C1	L2
		OR			
2.	a)	Explain the Taylor's Scientific Management Theory.	7M	C1	L2
	b)	Define Organization and its Features.	7M	C1	L4
		UNIT–II			
3.	a)	Differentiate between Methods of Production.	6M	C2	L2
	b)	Describe the Elements of Marketing Mix.	8M	C6	L5
		OR			
4.	a)	Define Plant Layout and Explain any two types of Plant Layouts with their relative advantages and disadvantages.	9M	C2	L4
	b)	Distinguish between A, B, C Items in ABC Analysis.	5M	C4	L2
		UNIT–III			
5.	a)	Describe the steps involved in Human Resource Planning.	6M	C6	L5
	b)	Analyze any two Methods of Job Evaluation.	8M	C6	L4
		OR			
6.	a)	Evaluate different methods of Performance Appraisal.	10M	C6	L5
	b)	List out the Sources of Recruitment.	4M	C6	L1
		UNIT–IV			
7.	a)	Describe the sources of mobilization of Long-Term & Short-Term Capital.	8M	C4	L5
	b)	Distinguish between PERT and CPM.	6M	C5	L2
		OR			
8.	a)	A Project has 7 activities, the expected time in weeks for each activity is as follows. Show that earliest and latest expected time on the network diagram. Find the critical path and duration of the project.			

S.No.	**1**	**2**	**3**	**4**	**5**	**6**	**7**
Activity	1-2	1-3	1-4	2-5	3-5	4-6	5-6
Duration in Weeks	5	4	6	10	6	8	5

			10M	C5	L6
	b)	Explain the steps involved in project crashing.	4M	C5	L2
		UNIT–V			
9.	a)	What are the various levels of information requirements in Management Information System (MIS)?	8M	C5	L1
	b)	What are the Components of TQM?	6M	C6	L1
		OR			
10.	a)	Explain What Is Supply Chain Management?	7M	C5	L2
	b)	What is the nature and scope of ethics?	7M	C5	L1

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Hall Ticket Number :										

R-17

Code: 7G271

IV B.Tech. I Semester Regular Examinations February 2021

Power Semiconductor Drives

(Electrical and Electronics 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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			Marks	CO	Blooms Level
		UNIT–I			
1.	a)	Explain speed-torque characteristics of 1-Ø semi controlled rectifier connected to DC separately excited motor with continuous mode of operation. Draw its relevant waveforms.	7M	1	2
	b)	A 220V, 960rpm, 12.8A separately excited DC motor has armature circuit resistance and inductance of 2Ω and 150mH respectively. It is fed from a single phase half controlled rectifier with an AC source of 230V, 50Hz. Calculate motor torque for $\alpha=60^0$ and speed is 600 rpm.	7M	1	3
		(OR)			
2.	a)	Derive the speed, torque equations of a fully controlled converter connected to a 3-Ø DC series motor for continuous current mode and draw the necessary waveforms.	7M	1	2
	b)	A DC series motor has $R_a = 3\Omega$, $R_f = 3\ \Omega$ and $K_{af} = 0.15$V-sec/rad. The motor speed is varied by a 3-Ø semi converter bridge. The firing angle is 45^0 and the average speed of the motor is 1450 rpm. The applied AC voltage to the bridge is 330Sinωt. Assuming continuous motor current, find the steady state average motor current and torque.	7M	1	3
		UNIT–II			
3.	a)	Explain four quadrant operation of DC motors by dual converter.	7M	2	2
	b)	Explain the closed loop operation of separately excited DC motor fed controlled rectifier with block diagram.	7M	2	2
		(OR)			
4.	a)	Explain dynamic braking, regenerative braking and plugging of DC separately excited motor with neat circuit diagrams and speed-torque characteristics.	7M	2	2
	b)	A 200V, 60A Dc series motor has armature and series field resistance of 0.06Ω and 0.04Ω, respectively. Running on no load with field winding connected to a separate Dc source, the motor gave the following magnetization characteristics at 500 rpm. The motor is controlled in regenerative braking by a chopper with input voltage of 200V.			

Field Current, A	10	20	30	40	50	60	70
Terminal Voltage, V	53	98	125	142	153	162	168

i. Calculate the motor speed for a duty ratio of 0.4 at motor braking torque equal to rated value.

ii. Calculate the maximum allowable motor speed for maximum permissible values of current of 60 A and duty ratio of 0.9. 7M 2 3

		UNIT–III			
5.		Derive the expression for speed and torque of a single quadrant chopper fed DC series motor with continuous mode of operation and also draw the speed torque characteristics.	14M	3	2

(OR)

6.	a)	Explain the operation of step-up chopper with circuit diagram and waveforms.	7M	3	2
	b)	A 220V, 24A, 1000rpm separately excited DC motor having an armature resistance of 2Ω is controlled by a chopper. The chopping frequency is 500Hz and the input voltage is 230V. Calculate the duty ratio for a motor torque of 1.2 times rated torque at 500 rpm.	7M	3	3

UNIT–IV

7.	a)	Explain in detail about the variable frequency control of induction motor by Current Source inverter.	7M	4	2
	b)	Explain the concept of slip power recovery with the help of control of Static Kramers drive.	7M	4	2

(OR)

8.	a)	Explain the variable frequency control of VSI based Induction motor drives.	7M	4	2
	b)	A 440V, 50Hz, 970 rpm, 6-pole Y star connected 3-Ø wound rotor induction motor has following parameters referred to the stator: $R_s = 0.1\Omega$, $R_r^1 = 0.08\Omega$, $X_s = 0.3\Omega$, $X_r^1 = 0.4\Omega$. The stator to rotor turns ratio is 2. Motor speed is controlled by static Scherbius drive. Drive is designed for a speed range of 25% below the synchronous speed. Maximum value of firing angle is 165^0. Calculate (i) Transformer turns ration. (ii) Torque for a speed of 780 rpm and $\alpha = 140^0$.	7M	4	3

UNIT–V

9.	a)	Explain the operation of self-controlled synchronous motor drive employing load commutated thyristor inverter.	7M	5	2
	b)	With the help of block diagram explain closed loop speed control of self-controlled synchronous motor drive.	7M	5	2

(OR)

10.		Describe separate controlled mode and self-controlled mode of operation of a synchronous motor drive in detail and compare them.	14M	5	2

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Hall Ticket Number :										

R-17

Code: 7G373

IV B.Tech. I Semester Regular Examinations February 2021

Digital Signal Processing

(Electrical and Electronics 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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			Marks	CO	Blooms Level
		UNIT–I			
1.	a)	State and prove time differentiation and convolution properties of Discrete Fourier Series.	7M	1	2
	b)	Determine the stability of the system $y(n) - \frac{5}{2}y(n-1) + y(n-2) = x(n) - x(n-1)$	7M	1	2
		OR			
2.	a)	Determine the 8-point DFT of the sequence $x(n) = \{1,0,1,1,0,0,1,0\}$	7M	1	3
	b)	Perform the linear convolution of the given two sequences $h(n) = \{1,1,1\}$ and $x(n) = \{1,2,3,5\}$	7M	1	2
		UNIT–II			
3.	a)	Compute the DFT of the sequence x(n) ={1,-1,1,-1} using DIT FFT algorithm	7M	1	5
	b)	Compute 4-point DFT of the sequence x(n) = {1,2,3,4} using DIF-FFT algorithm	7M	1	5
		OR			
4.	a)	Briefly differentiate DIT and DIF FFT algorithms.	6M	1	4
	b)	Calculate DFT of the sequence x(n)={1,2,3,4,4,3,2,1} using DIT-FFT algorithm.	8M	1	3
		UNIT–III			
5.	a)	Realize the system with difference equation $y(n) = \frac{3}{2}y(n-1) + \frac{5}{2}y(n-2) + 3x(n) + x(n-1)$ using direct form-1	7M	2	3
	b)	Determine H(Z) using impulse invariance method for the analog transfer function $H(s) = \frac{7}{s(s+5)}$	7M	2	4
		OR			
6.	a)	Design an analog Butterworth filter for the following specifications α_p = 0.5dB; α_s = 22dB; f_p = 10 kHz; f_s = 25 kHz	7M	2	6
	b)	Design a digital filter using bilinear transformation method from an analog filter transfer function $H(s) = \frac{1}{s^2+6s+9}$	7M	2	6
		UNIT–IV			
7.	a)	Design an ideal low-pass filter with a frequency response $H_d(e^{jw}) = 1 \quad for \quad -\frac{\pi}{2} \le \omega \le \frac{\pi}{2}$ $= 0 \quad for \quad \frac{\pi}{2} \le \lvert\omega\rvert \le \pi$ Find the values of $h(n)$ for N=11. Find *H(z).*	10M	2	6
	b)	Discuss about the various window techniques to design digital FIR filter.	4M	2	1
		OR			
8.	a)	Design an ideal low pass filter having a frequency response $H_d(e^{jw}) = 1 \quad for \quad -\frac{\pi}{2} \le \omega \le \frac{\pi}{2}$ $= 0 \quad for \quad \frac{\pi}{2} \le \lvert\omega\rvert \le \pi$ Using a Blackman window with N=11.	10M	2	6
	b)	Discuss about differences between FIR and IIR filter.	4M	2	2
		UNIT–V			
9.	a)	Describe the oversampling D/A converter in digital signal processing.	7M	3	2
	b)	Discuss various signal compression techniques in digital signal processing.	7M	3	2
		OR			
10.	a)	With a neat block diagram explain musical sound processing in DSP.	7M	3	3
	b)	Explain spectral analysis of non-stationary signals.	7M	3	2

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