Hall Ticket Number :										

R-15

Code: 5G272

IV B.Tech. I Semester Supplementary Examinations July 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)	Explain what is meant by (i) load factor (ii) diversity factor (iii) contribution factor. Discuss the characteristics of different loads.	7M	01	02
	b)	What is loss factor? How is it related to load factor? Explain its significance.	7M	01	02
		OR			
2.	a)	Explain how load growth is estimated. How is diversified maximum demand computed? Illustrate with an example.	7M	01	02
	b)	Explain why deviation of (i) voltage (ii) frequency be taken into consideration for estimating the load on the distribution system. Give the empirical relation for change in 'P' and 'Q' with the above Variations.	7M	01	02
		UNIT–II			
3.	a)	How do you choose the primary feeder arrangement from reliability point of view? Discuss the arrangements with suitable diagrams	7M	02	02
	b)	What is the advantage of square-type distributor and service area and how is the substation capacity arrived at?	7M	02	02
		OR			
4.		Explain in detail a) principle of operation, b) coordination, c) procedure for general coordination of protective devices.	14M	02	02
		UNIT–III			
5.	a)	Draw a line diagram of a radial-type primary feeder. Mention the factors that influence the selection of primary feeders.	7M	03	02
	b)	Explain the factors governing site selection and classification of substation.	7M	03	02
		OR			
6.		Explain in detail different types of bus bar arrangement in substation. Utilize graphical illustration wherever required.	14M	03	02
		UNIT–IV			
7.	a)	Explain how reduction in line current and hence power losses are obtained with p.f improvement.	7M	04	02
	b)	Compare and Explain Phase advancers and generation of reactive power using static Capacitors	7M	04	04
		OR			
8.		Explain in detail about voltage control using i) Excitation control, ii) Shunt Capacitors and reactors, iii) Series Capacitors.	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-15

Code: 5G379

IV B.Tech. I Semester Supplementary Examinations July 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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UNIT–I

1. Find total response of the system described difference equation y(n)+2y(n-1)+y(n-2)= x(n)+x(n-1) with initial conditions y(-1)=y(-2)=1 and input $x(n)=(1/2)^n u(n)$? 14M

OR

2. By applying linear convolution Find DFT of the following sequences x(n) = {1,2} h(n)= {2,1}? 14M

UNIT–II

3. a) What is FFT? Explain Why FFT is preferred compared to DFT. 4M

   b) Calculate DFT of the sequence x(n)={1,2,3,4,4,3,2,1} using DIT-FFT algorithm. 10M

OR

4. a) Discuss about DIF-FFT algorithm. 4M

   b) Compute 8 point DFT of the sequence x(n)={0,1,2,3,4,5,6,7}using DIF-FFT algorithm. 10M

UNIT–III

5. a) Briefly write about design of digital filters from analog filters. 4M

   b) Obtain the analog Chebyshev filter transfer function that satisfies the constraints 10M

$$1/\sqrt{2} \le |H(j\Omega)| \le 1 \quad ; \quad 0 \le \Omega \le 2 \qquad |H(j\Omega)| < 0.1 \quad ; \quad \Omega \ge 4$$

OR

6. a) Briefly explain the transposed structure of IIR filters 6M

   b) Determine Direct form II Realization for following system. 8M

$$Y(n)=-0.1y(n-1)+0.72y(n-2)+0.7x(n)- 0.252x(n-2)$$

UNIT–IV

7. a) Compare IIR and FIR filters. 4M

   b) Design a Filter with 10M

$$H_d(e^{jw}) = e^{-j3w} \quad ; \quad -\pi/4 \le w \le \pi/4$$

$$0 \quad ; \quad \pi/4 \le w \le \pi$$

Using Hamming Window for N=7

OR

8. a) List out the important properties of linear phase FIR filters. 7M

   b) Explain the characteristics of FIR digital filters. 7M

UNIT–V

9. Explain about spectral analysis of non-stationary signals? 14M

OR

10. Write short notes on 14M

    a) Over sampling ADC

    b) Over sampling DAC.

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Hall Ticket Number :										

R-15

Code: 5G276

IV B.Tech. I Semester Supplementary Examinations July 2020

Principles of Power Quality

(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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UNIT–I

1. a) Define Power Quality. Explain the reasons for increased concern in power quality 7M

   b) Describe the power quality evaluation procedure. Draw the hierarchical approach. 7M

OR

2. a) Draw and explain CBEMA and ITI Curves. Also give its significance in power quality. 7M

   b) Explain about transient phenomenon in power system. 7M

UNIT–II

3. How the voltage sag performance can be estimated? Define area of vulnerability. 14M

OR

4. Discuss general classes of power quality problems what are the various solutions for power quality improvement at the end user level? 14M

UNIT–III

5. Explain the following terms

   i) Harmonic distortion ii) Harmonic indices iii) Harmonic distortion evaluations 14M

OR

6. Explain the significance of Harmonic index. Explain the general harmonic indices used universally in analyzing harmonic distortion. 14M

UNIT–IV

7. a) Discuss the following source of transient over voltages.

   (i) Capacitor switching. (ii) Lightning. (iii) Ferroresonance 7M

   b) Discuss how the capacitors are used for voltage regulation in power system in shunt and series configurations. 7M

OR

8. a) Discuss briefly about Utility system lightning protection 7M

   b) How can utilities deal with problems related to capacitor switching transients? Explain. 7M

UNIT–V

9. Describe the RMS voltage variation indices and harmonic indices 14M

OR

10. a) Explain various Power quality contracts in detail. 7M

    b) Describe the process of power quality benchmarking. 7M

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