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R-15

Code: 5G272

IV B.Tech. I Semester Supplementary Examinations January 2022

Distribution of Electric Power

(Electrical and Electronics Engineering)

Max. Marks: 70

Time: 3 Hours

Answer any five full questions by choosing one question from each unit (5x14 = 70 Marks)

	Marks	CO	Blooms Level
UNIT-I			
1. a) What is meant by load factor and loss factor? Obtain the relationship between load factor and loss factor	7M	1	1
b) Discuss how the factors affecting distribution system losses.	7M	1	2
OR			
2. Classify different types of loads and draw their characteristics in detail	14M	1	4
UNIT-II			
3. a) List the design and operational aspects that affects the primary feeder voltage level	7M	2	1
b) Discuss the coordination procedure between fuse and a circuit breaker	7M	2	2
OR			
4. a) List out types protective devices used and explain principle of operation of any two protective devices	7M	2	1
b) Discuss briefly the design considerations in distribution system	7M	2	2
UNIT-III			
5. a) Explain indoor and outdoor substation and list out its merits and demerits.	8M	3	1
b) Show that if the voltage drops are limited, six feeders can carry only 1.25 times as much load as the four feeders	6M	3	5
OR			
6. a) Discuss about double bus bar with two circuit breakers	7M	3	2
b) Derive the relationship for power loss and voltage drop for substation service area with 'n' primary feeders	7M	2	6
UNIT-IV			
7. a) How do you justify economically the connection of capacitors for the improvement of p.f.	7M	4	5
b) A 3 phase, 5 kW induction motor has a power factor of 0.85 lagging. A bank of capacitor is connected in delta across the supply terminal and power factor raised to 0.95 lagging. Determine the kVAR rating of the capacitor in each phase?	7M	4	5
OR			
8. a) Write the causes for low power factor in power system	6M	4	2
b) A 3 phase transformer rated 7000kVA and has a over load capability of 125% of the rating. If the connected load is 1150 kVA with a 0.8p.f. (lag), determine the following (i) the kVAR rating of shunt capacitor bank required to decrease the kVA load of the transformer to its capability level (ii) the p.f. of the corrective level (iii) the kVAR rating of the shunt capacitor bank required to correct the load p.f. to unity.	8M	4	5
UNIT-V			
9. a) Explain the various factors affecting the distribution system planning	8M	5	2
b) Discuss about substation expansion	6M	5	2
OR			
10. Discuss different types of distribution system planning models.	14M	5	2

END

Code: 5G379

IV B.Tech. I Semester Supplementary Examinations January 2022

Digital Signal Processing

(Electrical and Electronics Engineering)

Max. Marks: 70

Time: 3 Hours

Answer any five full questions by choosing one question from each unit (5x14 = 70 Marks)

	Marks	CO	Blooms Level
UNIT-I			
1. a) Determine the response $y(n)$, $n \geq 0$ of the system described by the linear constant coefficient difference equation: $y(n)-2y(n-1)+2y(n-2)=x(n)+x(n-1)$ where $x(n)=(2)^n u(n)$ and initial conditions are $y(-1)=y(-2)=0$	8M	1	L3
b) Prove Circular Convolution and Complex Conjugate DFT properties.	6M	1	L4
OR			
2. a) Give Comparison between CTFT, DTFT & DFT.	7M	1	L5
b) What do you mean by LTI System and explain its properties with suitable examples?	7M	1	L1
UNIT-II			
3. a) Calculate DFT of the sequence $x(n)=\{1,2,3,4,4,3,2,1\}$ using DIT-FFT algorithm.	10M	1	L6
b) What is Twiddle Factor and its importance in FFT?	4M	1	L1
OR			
4. Explain in brief about procedural steps involved in decimation in time and decimation in frequency.	14M	1	L4
UNIT-III			
5. a) Determine cascade & direct form-I Realization for following system. $Y(n)=-0.7 y(n-1)+0.5 y(n-1)+0.7x(n)-0.1 x(n-2)$	8M	2	L3
b) Describe IIR Filter designing and realization.	6M	2	L1
OR			
6. a) Discuss about different analog to digital transformation techniques.	6M	2	L5
b) Discuss Butterworth filter approximation method.	8M	2	L2
UNIT-IV			
7. a) Enlist different window functions with their characteristics.	8M	2	L1
b) Explain the characteristics of FIR digital filters	6M	2	L2
OR			
8. a) Design a Filter if $H_d(e^{jw})= e^{-j3w} ; -\pi/4 \leq w \leq \pi/4$ $0 ; \pi/4 < w < 3\pi/4$ Using Hanning Window for $N=8$	10M	2	L6
b) Give a comparative analysis of IIR & FIR Digital filters	4M	2	L5
UNIT-V			
9. a) What are the major blocks in Musical sound processing? Explain briefly.	7M	3	L1
b) Explain about D/A conversion in signal processing applications.	7M	3	L2
OR			
10. a) Describe spectral analysis of non-stationary signals in DSP.	7M	3	L1
b) Discuss signal compression techniques.	7M	3	L4

END