

Hall Ticket Number :										
----------------------	--	--	--	--	--	--	--	--	--	--

R-19

Code: 19A45FT

III B.Tech. I Semester Supplementary Examinations Nov/Dec 2022

Electronic Measurements and Instrumentation

(Electronics and Communication 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) Define the following terms: (i) Accuracy. (ii) Precision (iii) Resolution	6M	1	1
b) Explain in detail the types of Error possible in measurement process.	8M	1	2
OR			
2. a) Explain about the Digital Multimeter.	6M	1	2
b) A set of independent voltage measurements was taken by six observers and recorded as 12.8 V, 12.2 V, 12.5 V, 13.1 V, 12.9 V, and 12.4 V. Calculate (a) Arithmetic Mean; (b) Deviation from the mean;(c)Average Deviation;(d) Standard Deviation.	8M	1	3
UNIT-II			
3. a) Draw the block diagram of a spectrum analyzer and explain its working.	8M	2	2
b) Discuss in brief the Sweep frequency generator.	6M	2	2
OR			
4. Draw and explain in detail about Simple frequency counter.	14M	2	2
UNIT-III			
5. Discuss in detail the construction and working of Digital Storage Oscilloscope.	14M	3	2
OR			
6. a) Discuss the different oscilloscope controls.	6M	3	2
b) Explain how Voltage and frequency are measured with the help of Oscilloscope.	8M	3	2
UNIT-IV			
7. a) Explain the basic principle of Wheatstone Bridge and derive the expression for unknown resistance.	7M	4	2
b) Explain the Kelvin bridge with neat diagram and derive the expression for unknown resistance.	7M	4	2
OR			
8. a) What is the need of Guarded Wheatstone Bridge? Explain.	8M	4	2
b) Discuss Sources of error in Q –meter.	6M	4	2
UNIT-V			
9. Define a Transducer. Explain about the classification of transducers.	14M	5	2
OR			
10. a) Explain about thermocouples.	7M	5	2
b) Describe about Resistance thermometers.	7M	5	2

Hall Ticket Number :										
----------------------	--	--	--	--	--	--	--	--	--	--

R-19

Code: 19A45BT

III B.Tech. I Semester Supplementary Examinations Nov/Dec 2022

Advanced Digital Design Concepts
(Electronics and Communication 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) Explain about the LS-TTL 2-Input NAND Gate with its function table.	8M	CO1	L2
b) Summarize about Bipolar logic.	6M	CO1	L2
OR			
2. a) Differentiate various logic families.	7M	CO1	L2
b) Recall the concept of Logic levels and noise margins.	7M	CO1	L1
UNIT-II			
3. a) Recall the Functions and procedures used in VHDL.	7M	CO2	L1
b) Outline about Packages and Libraries used in VHDL.	7M	CO2	L4
OR			
4. Differentiate between Component declaration and Component instantiation statements with relevant examples.	14M	CO2	L2
UNIT-III			
5. a) Design 3 to 8 decoder using case statement in VHDL.	7M	CO3	L6
b) Explain about the Process statement in VHDL.	7M	CO3	L2
OR			
6. a) Describe Conditional signal assignment statement with an example.	7M	CO3	L2
b) Differentiate between Variable assignment and Signal assignment statements with an example.	7M	CO3	L2
UNIT-IV			
7. a) Design a 4 X1 Multiplexer using VHDL	7M	CO4	L6
b) Describe the architecture of a parity circuit.	7M	CO4	L2
OR			
8. Explain with neat structure of 8 X 3 encoder. Write the VHDL program for standard IC 74 x 148.	14M	CO4	L2
UNIT-V			
9. a) Describe the functionality of JK Flip-flop using VHDL.	8M	CO5	L2
b) Differentiate between Latches and Flipflops	6M	CO5	L2
OR			
10. Describe the operation of Decade counter with VHDL Program.	14M	CO5	L2

Hall Ticket Number :									
----------------------	--	--	--	--	--	--	--	--	--

R-19

Code: 19A454T

III B.Tech. I Semester Supplementary Examinations Nov/Dec 2022

Digital Communication

(Electronics and Communication Engineering)

Max. Marks: 70

Time: 3 Hours

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

	Marks	CO	BL
UNIT-I			
1. a) Describe about the basic elements of Digital Communication	7M	1	L1
b) List out the advantages of Digital Communication	7M	1	L1
OR			
2. a) Explain the operation of Delta modulation	7M	1&3	L2
b) Differentiate between Delta modulation and PCM	7M	1&3	L2
UNIT-II			
3. a) Discuss about the Non-Coherent Detection of Amplitude Shift Keying	7M	1&3	L1
b) Discuss about the generation of Amplitude Shift Keying	7M	1&3	L1
OR			
4. a) Explain in detail about the Coherent detection of PSK with neat diagram	7M	1&3	L2
b) Explain the generation BFSK modulation technique with the help of a neat diagram.	7M	1&3	L2
UNIT-III			
5. a) Write short notes on i) joint entropy ii) condition entropy iii) mutual information	7M	2&3	L1
b) Explain Shanon theorem	7M	2&3	L1
OR			
6. a) Explain about Channel capacity	7M	2&3	L2
b) Explain the following i) Bandwidth and S/N tradeoff ii) Channel Capacity of Continuous channel	7M	2&3	L2
UNIT-IV			
7. a) Identify the Efficiency for a Discrete Memory less source when five source messages have probabilities $m_1=0.4$, $m_2=0.2$, $m_3=0.2$, $m_4=0.1$, $m_5=0.1$ using Huffman coding	7M	2&3	L2
b) Discuss about Lempel-Ziv coding	7M	2&3	L1
OR			
8. a) Design a single error correcting code with message block size as 8 bits	7M	2&3	L4
b) Identify the entropy using Shanon-Fano code for a message HELLO	7M	2&3	L3
UNIT-V			
9. a) Discuss about Encoding of Convolutional Codes	7M	2&3	L1
b) Explain the Trellis Diagram of Convolutional Codes	7M	2&3	L2
OR			
10. Draw the State diagram, Tree diagram and Trellis diagram for $k=3$, rate= $1/3$ code generated by $g_1(x) = 1+x^2$, $g_2(x)=1+x$, and $g_3(x)=1+x+x^2$	14M	2&3	L5

Hall Ticket Number :										
----------------------	--	--	--	--	--	--	--	--	--	--

R-19

Code: 19A453T

III B.Tech. I Semester Supplementary Examinations Nov/Dec 2022

Digital Signal Processing

(Electronics and Communication 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. Find the circular convolution of the two sequences using matrix method $X1(n)=\{1, 2, 3, 4\}$ and $x2(n)=\{1, 1, 1, 1\}$	14M	CO1	L1
OR			
2. a) Write the condition for system stability.	7M	CO1	L2
b) Check and explain whether the system $y(n) = e^{x(n)}$ is linear or not?	7M	CO1	L2
UNIT-II			
3. Find the 8-point DFT of a given sequence $x(n) = \{1, 2, 2, 1, 1, 2, 2, 1\}$ using DIF-FFT algorithm.	14M	CO1	L1
OR			
4. a) Write the steps for radix-2 DIT FFT algorithm.	7M	CO1	L6
b) Solve the 8-point of a given sequence $x(n) = \{1, 2, 2, 1, 1, 2, 2, 1\}$ using DITFFT algorithm.	7M	CO1	L6
UNIT-III			
5. a) Compare Butterworth with Chebyshev filters.	7M	CO2	L5
b) Infer the advantages and disadvantages of window.	7M	CO2	L4
OR			
6. For the given specifications, design an analog Butterworth filter $0.9 \leq H(j\Omega) \leq 1 \text{ for } 0 \leq \Omega \leq 0.2\pi$ $ H(j\Omega) \leq 0.2 \text{ for } 0.4\pi \leq \Omega \leq \pi$	14M	CO2	L6
UNIT-IV			
7. Explain in detail the spectrum of up sampling and down sampling.	14M	CO3	L2
OR			
8. Write short notes on multistage implementation of Sampling rate conversion	14M	CO3	L2
UNIT-V			
9. Describe spectral analysis of non-stationary signals in DSP	14M	CO4	L1
OR			
10. Explain the concept of single echo filter and multiple echo filter of time domain operations in musical sound processing.	14M	CO4	L2
