AR16

CODE: 16OE3031 **SET-1**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

III B.Tech I Semester Supplementary Examinations, January-2020

Fundamentals of Fuzzy Logic

Time: 3 Hours **Max Marks: 70**

Answer ONE Question from each Unit
All Questions Carry Equal Marks
All parts of the Question must be answered at one place

UNIT-I

1. Let X be the set of players of different games and A be the set of cricket players B be the set of football players and C be the set of hockey players, defined by 14M
$A=\{(x_1,0.9),(x_2,0.7),(x_3,0.6),(x_4,0.8),(x_5,0)\}$
$B=\{(x_1,0.4),(x_2,0.1),(x_3,0.4),(x_4,0.1),(x_5,0.9)\}$
$C=\{(x_1,0.1),(x_2,0.5),(x_3,0.2),(x_4,0.2),(x_5,0.1)\}$ show that (i) $(A\cup B)^c=(A)^c\cap(B)^c$
(ii) $(A\cup B)\cup C=A\cup(B\cup C)$
(iii) $(A\cap B)\cap C=A\cap(B\cap C)$ (iv) $A\oplus B=(A^c\cap B)\cup(A\cap(B)^C)$
(v) $(A^c)^c=A$

(OR)

2. a) Given two fuzzy sets $A=\{(x_1,0.2),(x_2,0.4),(x_3,0.5)\}$ 7M
$B=\{(y_1,0.1),(y_2,0.6),(y_3,0.8),(y_4,0.7),\}$ defined on $X=\{x_1,x_2,x_3\}$ and
$Y=\{y_1,y_2,y_3,y_4\}$ respectively. Determine the fuzzy relation $R=A\times B$.

b) Find $R\circ S$ if R=$\begin{bmatrix}0.6 & 0.4\\ 0.7 & 0.3\end{bmatrix}$ and S=$\begin{bmatrix}0.8 & 0.5 & 0.1\\ 0 & 0.6 & 0.4\end{bmatrix}$ Using max-min composition. 7M

UNIT-II

3. a) Describe about Generalized Modus Ponens rule. 7M
b) Given two fuzzy sets $A=\{(x_1,0.5),(x_2,1),(x_3,0.6)\}$ $B=\{(y_1,1),(y_2,0.4)\}$ 7M
$A'=\{(x_1,0.6),(x_2,0.9),(x_3,0.7)\}$ defined on $X=\{x_1,x_2,x_3\}$ and $Y=\{y_1,y_2\}$ respectively then Determine B' by using Generalized Modus Ponens rule

(OR)

4. a) Describe about Generalized Modus Tollens rule. 7M
b) Given two fuzzy sets $A=\{(x_1,0.6),(x_2,0.9),(x_3,1)\}$ $B=\{(y_1,0.6),(y_2,1)\}$ 7M
$B'=\{(y_1,0.5),(y_2,0.9)\}$ defined on $X=\{x_1,x_2,x_3\}$ and $Y=\{y_1,y_2\}$ respectively then Determine A' by using Generalized Modus Tollens rule.

UNIT-III

5. Obtain a fuzzy set from the following data points $\{(0,0),(0.5,0.2),(0.8,0.9),(1,1)\}$ using Lagrange's interpolation method. 14M

(OR)

6. Construct a fuzzy set from the given data points 14M
$\{(0,0),(0.5,0.2),(0.8,0.9),(1,1),(1.2,0.8),(1.5,0.3),(2,0.4)\}$
using Least squares method

UNIT-IV

7. Design a fuzzy controller to regulate the temperature of a domestic shower under the given conditions 14M

(i) Temperature is adjusted by a single rotating tap, with input variable as position of Tap of angle range from 0 to 180^0

(ii) The flow of water is constant.

(iii) The output variable is the temperature of the water of range 0 to 100^0 C.

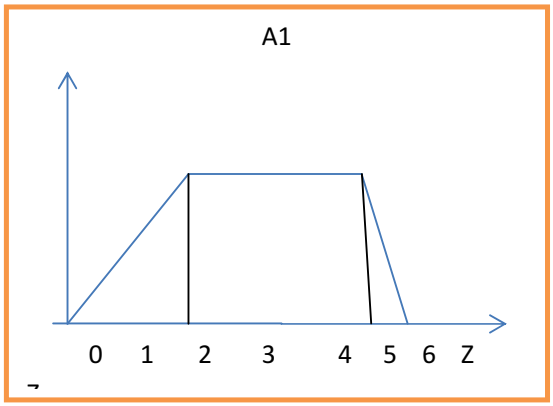
Find the temperature of water if the tap position is at 50^0.

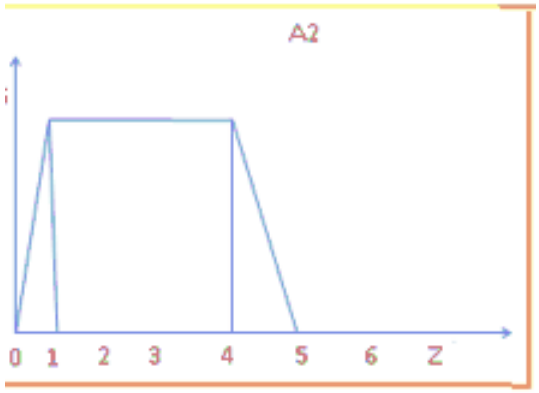
(OR)

8 Explain the fuzzy control system with their block diagram. Give one example. 14M

UNIT-V

9. Fuzzy set A_1& A_2 are given by 14M

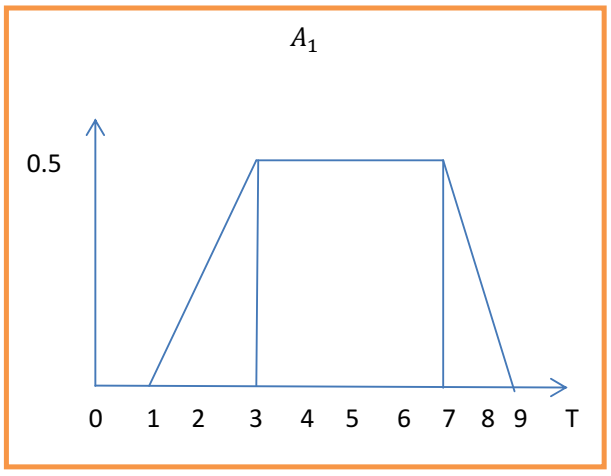


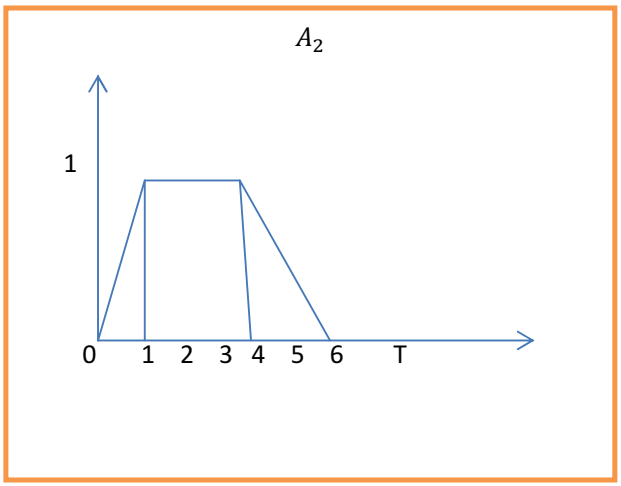


Calculate the defuzzified value Z^* using 1. Centroid Method 2. Center of Sums method 3. Mean of Maxima method.

(OR)

10. Given two fuzzy sets A_1& A_2 as shown below, Calculate the defuzzified avalue of T^* using 14M
1 Centroid Method 2. Center of Sums method 3. Mean of Maxima method





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AR16

CODE: 16OE3032 **SET-2**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

III B.Tech I Semester Supplementary Examinations, January-2020

ENVIRONMENTAL IMPACT ASSESSMENT

Time: 3 Hours **Max Marks: 70**

Answer ONE Question from each Unit
All Questions Carry Equal Marks
All parts of the Question must be answered at one place

UNIT-I

1.	a)	Explain the preparation of Environmental Base Map.	7M
	b)	Explain the Basic concept of EIA.	7M
		(OR)	
2.	a)	Describe the generalised process flow chart of EIA.	7M
	b)	Explain the classification of Environmental Parameters.	7M

UNIT-II

3.	a)	Describe the overlay method in EIA methodology.	7M
	b)	Explain about network method with example.	7M
		(OR)	
4.	a)	Explain the Ad-hoc method and their draw backs	7M
	b)	Describe the Leopold matrix method.	7M

UNIT-III

5.	a)	Explain about the environmental impact of deforestation.	7M
	b)	Describe how impact assessment will be done on wildlife for any development project.	7M
		(OR)	
6.	a)	Describe about the causes and effects of deforestation.	7M
	b)	Explain the mitigation measures to protect Endangered species of wildlife while considering any developmental project in those areas.	7M

UNIT-IV

7.	a)	Explain about audit protocol.	7M
	b)	Describe the post audit activities.	7M
		(OR)	
8.	a)	Explain the stages of Environmental Audit	7M
	b)	Discuss the types of audit.	7M

UNIT-V

9.	a)	Discuss about the air pollution act.	7M
	b)	Explain about the wild life act.	7M
		(OR)	
10.		Explain about case study on EIA report for any industry	14 M

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AR16

CODE: 16OE3034 **SET-2**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

III B.Tech I Semester Supplementary Examinations, January-2020

ELEMENTS OF WORKSHOP TECHNOLOGY

Time: 3 Hours **Max Marks: 70**

Answer ONE Question from each Unit
All Questions Carry Equal Marks
All parts of the Question must be answered at one place

UNIT-I

1.	a)	Define and classify forming process.	5M
	b)	Briefly explain any two forming operations.	9M
		(OR)	
2.		Briefly explain about cold working and hot working operations.	14M

UNIT-II

3.	a)	What are the striking tools and holding devices used in carpentry?	6M
	b)	Briefly explain some striking tools and holding devices used in carpentry?	8M
		(OR)	
4.	a)	What are the cutting tools used carpentry?	4M
	b)	Explain about some cutting tools used carpentry.	10M

UNIT-III

5.	a)	List out the fitting operations.	4M
	b)	Briefly explain three fitting operations.	10M
		(OR)	
6.		Briefly explain about marking and measuring tools used in fitting.	14M

UNIT-IV

7.	a)	What are the hand tools used in smith forging?	4M
	b)	Explain any four hand tools in smith forging with neat sketch.	10M
		(OR)	
8.		Explain following smith forging operations.	14M
		i) Upsetting ii) Punching iii) Welding iv) Fullering v) Bending	

UNIT-V

9.	a)	What are the sheet metal joints, snips and stakes?	6M
	b)	Briefly explain about hem joint and seam joint.	8M
		(OR)	
10.		Briefly explain the following terms.	14M
		i) Hand hammers and mallets. ii) Shearing iii) Bending iv) Drawing v) Squeezing	

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AR16

CODE: 16OE3035 **SET-1**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

III B.Tech I Semester Supplementary Examinations, January-2020

INTRODUCTION TO SIGNAL PROCESSING

Time: 3 Hours **Max Marks: 70**

Answer ONE Question from each Unit
All Questions Carry Equal Marks
All parts of the Question must be answered at one place

UNIT-I

1.	a)	Explain in detail about the classification of systems	7M
	b)	Find the Z-transform of following signals (i) u(n) (ii) $(a)^n$ u(n)	7M
		(OR)	
2.	a)	Given X1(n)= $(1/2)^n$ u(n) and X2(n)= $(1/3)^n$ u(n) and X(n)=X1(n)*X2(n) Find X(Z) using convolution property	7M
	b)	Find the cross correlation of given signals X1(n)={3,-1,4,2} and X2(n)={1,1,2,-2}	7M

UNIT-II

3.	a)	Perform the circular convolution between the given sequences X1(n)= {4,2,3,2} and x2(n)={1,4,3,4}	7M
	b)	Find DFT of the given sequence x(n)={2,0,3,-1}	7M
		(OR)	
4.	a)	Define DFT and explain about the properties of DFT	7M
	b)	Determine the 8-point DFT of the sequence x(n) = {1,1,1,1,1,1,0,0}.	7M

UNIT-III

5.	a)	Compare Radix-2 DIT and Radix-2 DIF FFT algorithms	4M
	b)	Find DFT for the given sequence using DIT-FFT algorithm X(n)= {1,2,1,2,1,2,1,2}	10M
		(OR)	
6.	a)	Develop a radix-2 DIF FFT algorithm for evaluating the DFT for N=4	4M
	b)	Find DFT using DIF-FFT algorithm X(n)= {1,2,3,4,4,3,2,1}	10M

UNIT-IV

7.		Design a low pass FIR filter for the following specifications Cut off frequency=π/2,filter length=11 using rectangular window	14M
		(OR)	
8.		Design a high pass FIR filter for the following specifications Cut off frequency=250 Hz, Sampling frequency=1 Khz, filter length=7 using Hanning window	14M

UNIT-V

9.	a)	Write the steps to design an analog Chebyshev low pass filter	4M
	b)	Design a Butterworth low pass filter that has pass band attenuation=2db at a frequency 20 rad/sec and stop band attenuation=10 db at 30 rad/sec	10M
		(OR)	
10.		Design an analog Chebyshev low pass filter for the given specifications pass band attenuation=3db at a frequency 1Khz and stop band attenuation=16 db at 2 Khz	14M

AR16

CODE: 16OE3036 **SET-2**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

III B.Tech I Semester Supplementary Examinations, January-2020

SOCIAL NETWORKS

Time: 3 Hours **Max Marks: 70**

Answer ONE Question from each Unit
All Questions Carry Equal Marks
All parts of the Question must be answered at one place

UNIT-I

1.	a)	Describe how Social Network involved in day to day life?	(7M)
	b)	What are the Attributes of Social Web?	(7M)
		(OR)	
2.	a)	Explain the Development of Semantic Web?	(7M)
	b)	What are the limitations of the Current Web?	(7M)

UNIT-II

3.	a)	Define Network Analysis? Explain with examples.	(7M)
	b)	Discuss Development of Social Network Analysis?	(7M)
		(OR)	
4.	a)	Write a notes on : concepts of Network Analysis, Measure in Networks ?	(7M)
	b)	Explain the following i) C/P Structure (4M) ii)Group (3M)	(7M)

UNIT-III

5.	a)	Write Electronic Discussion of Network Analysis?	(7M)
	b)	Distinguish Blogs and Online Communities?	(7M)
		(OR)	
6.	a)	Describe Web Based Networks?	(7M)
	b)	Compare Web Data and Blogs?	(7M)

UNIT-IV

7.	a)	Discuss RDF VS RDF Schema?	(7M)
	b)	Explain Ontology Based Knowledge Representation?	(7M)
		OR	
8.	a)	Write short notes on E/R Model Vs Relational Model?	(7M)
	b)	Discuss Ontology Language for Semantic Web?	(7M)

UNIT-V

9.	a)	Discuss Storage and Reasoning of social networks?	(7M)
	b)	Compare Visualization and Analysis of social network analysis?	(7M)
		(OR)	
10.	a)	Describe the techniques of Data Acquisition?	(7M)
	b)	Explain Methodologies of SNA.	(7M)

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AR16

CODE: 16OE3037 **SET-2**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

III B.Tech I Semester Supplementary Examinations, January-2020

FUNDAMENTALS OF COMPUTER GRAPHICS

Time: 3 Hours **Max Marks: 70**

Answer ONE Question from each Unit
All Questions Carry Equal Marks
All parts of the Question must be answered at one place

UNIT-I

1.	a)	Explain various applications of computer graphics	8M
	b)	Explain Raster-scan displays.	6M
		(OR)	
2.	a)	Differentiate Raster and Random scan displays.	7M
	b)	Explain Beam-Penetration CRT.	7M

UNIT-II

3.	a)	Explain Digital Differential Analyzer (DDA) line drawing Algorithm.	7M
	b)	Rasterize a line by using DDA algorithm having end point coordinates as (20,10) & (30,18).	7M
		(OR)	
4.	a)	Explain briefly Midpoint circle generation algorithm.	7M
	b)	Calculate the pixel for radius is 10 and centre is (0,0) using midpoint circle generation algorithm.	7M

UNIT-III

5.	a)	Explain briefly all 2-D Geometrical transformations	8M
	b)	Translate a polygon with coordinates A(2,5), B(7,10) and C(10,2) by 3 units in x-direction and 4- units in y-direction.	6M
		(OR)	
6.	a)	A triangle with points A(3,5),B(5,5) and C(3,7) is reflected about the line x-axis , y- axis and y=-x.	8M
	b)	Write about Composite transformations	6M

UNIT-IV

7.	a)	Explain the Cohen-Sutherland line clipping algorithm with an example.	7M
	b)	Write about window-to-viewport coordinate transformation.	7M
		(OR)	
8.	a)	What are projections? Derive the general parallel projection transformations.	7M
	b)	Explain 3D basic transformations	7M

UNIT-V

9.	a)	What is hidden surface? Explain it with any algorithm.	7M
	b)	Explain Z-buffer algorithm	7M
		(OR)	
10.	a)	Define an Animation. Discuss about different applications of Animation.	7M
	b)	Write short note on general computer animation functions.	7M

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AR13

CODE: 13CS3008 **SET-1**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
III B.Tech I Semester Supplementary Examinations, January-2020
COMPUTER ORGANIZATION AND ARCHITECTURE
(Electronics and Communication Engineering)

Time: 3 Hours **Max Marks: 70**

PART-A

ANSWER ALL QUESTIONS **[1 x 10 = 10 M]**

1. a) Discuss about floating point representation.
   b) How to access I/O devices in a system?
   c) Explain about the memory hierarchy.
   d) Differentiate between full duplex and half duplex communication.
   e) What is parallel processing?
   f) Discuss the possible modes of data transfer.
   g) Define hit ratio.
   h) Define the term cache coherence.
   i) Write the advantage of RISC over CISC?
   j) Explain the operation of Associative memory.

PART-B

Answer one question from each unit **[5x12=60M]**

UNIT-I

2. a) Explain different functional units of a digital computer with neat sketch. 6M
   b) What are multiprocessors? Discuss their characteristics. 6M

(OR)

3. a) Explain briefly about the bus system for four registers. 4M
   b) Perform the arithmetic operation of (+42)+(-13) and (-42)-(-13) in binary signed 2's complement. 8M

UNIT-II

4. Explain the flowchart for division operation and give an example of binary division 12M

(OR)

5. Design and explain BCD subtractor with an example. 12M

UNIT-III

6. a) Draw a 4-bit arithmetic circuit. Mention its function table in detail. 8M
   b) Discuss briefly about register transfer. 4M

(OR)

7. a) What is opcode? List out the types of Registers used for basic computers. 6M
   b) Explain briefly the stages of Instruction cycle. 6M

UNIT-IV

8. Draw a neat block diagram of memory hierarchy in a computer system. 12M

(OR)

9. Explain hand shaking in asynchronous data transfer. 12M

UNIT-V

10. a) With a neat diagram, explain the instruction pipeline processing in RISC architecture. 8M
    b) What are the steps involved in instruction cycle in instruction pipeline. 4M

(OR)

11. a) Explain serial arbitration procedure. 6M
    b) Write in detail about inter processor communication and synchronization. 6M

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AR13

CODE: 13EC3017 **SET-2**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
III B.Tech I Semester Supplementary Examinations, January-2020
PULSE AND DIGITAL CIRCUITS
(Electrical and Electronics Engineering)

Time: 3 Hours **Max Marks: 70**

PART-A

ANSWER ALL QUESTIONS **[1 x 10 = 10 M]**

1. a) Write the expression for the output of a low pass circuit excited by a symmetrical square wave?
   b) How is an attenuator compensated?
   c) List the applications of clipping circuits?
   d) Why is the clamping circuit also called a dc inserter?
   e) Define the term Fall time of transistor switching times?
   f) What are commutating capacitors? Why they are required?
   g) Write the expression for the period of oscillation of an astable multivibrator when it is used as a voltage to frequency converter?
   h) What type of triggering is used in a monostable multivibrator?
   i) What do you mean by sweep waveforms?
   j) What are the methods for generating a time-base waveform?

PART - B

Answer one question from each unit **[5 X 12 = 60M]**

UNIT-I

2. a) Explain the response of a high pass RC circuit to step and pulse input waveforms? [8M]
   b) A symmetrical square wave of ±5V, 1KHz frequency signal is applied to high pass RC circuit having R=20KΩ and C=0.05μF. Draw the output waveform and indicate the output voltages. [4M]

(OR)

3. a) Derive the relation between rise time and RC time constant of a low pass RC circuit? [6M]
   b) Obtain the response of a low pass RC circuit for Exponential input signal? [6M]

UNIT-II

4. a) With the help of a neat circuit diagram and waveforms explain the working of a positive clamping circuit. [6M]
   b) Draw and design a diode clipper circuit to clip a given input voltage of 10sinwt at +5V and -3V level? [6M]

(OR)

5. a) Draw the circuit diagram of clipping at two independent levels. Explain its operation with the help of its transfer characteristics? [6M]

   b) Design a diode clamper circuit to clamp the positive peaks of the input signal at zero level. The frequency of input voltage is 1000Hz. [6M]

UNIT-III

6. a) With a neat circuit diagram explain the working principle of self bias binary? [6M]

   b) For a common emitter circuit, V_{CC} = 12V, R_C = 0.5KΩ, and I_B = 0.5mA. (i) Determine the value of $h_{FE(min)}$ for saturation to occur. (ii) If R_C is changed to 1000Ω, will the transistor be saturate? [6M]

(OR)

7. The fixed bias binary shown in figure uses n-p-n silicon transistors with $V_{CE(sat)}$=0.5V, $V_{BE(sat)}$=1V, I_{CBO}=10nA at 25^0C and zero base-to-emitter voltage at cut-off. The circuit parameters are V_{CC}=V_{BB}=6V, R_C=1.2KΩ, R_1=4.7Ω, R_2=27KΩ. Find (a) $h_{FE(min)}$ and stable state voltages and currents? [12M]

UNIT-IV

8. a) Derive the expression for the period of oscillations of an astable multivibrator? [6M]

   b) Show that a monostable multivibrator can be used as a voltage-to-time converter? [6M]

(OR)

9. Calculate the component values of a monostable multivibrator developing an output pulse of 500μs duration. Assume h_{FE}(min)=25, I_c(sat)=5mA, V_{CC}=10V and V_{BB}= -4V. [12M]

UNIT-V

10. With a neat circuit diagram explain Exponential sweep circuit and prove that e_s=2e_t=8e_d. [12M]

(OR)

11. a) With a neat circuit diagram explain the working of a transistor constant-current sweep? [6M]

    b) Explain the basic principle of the Bootstrap time base generator with neat circuit diagram? [6M]

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