AR18

CODE: 18IET321 **SET-2**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

III B.Tech I Semester Supplementary Examinations, November-2021

FUNDAMENTALS OF FUZZY LOGIC

Time: 3 Hours **Max Marks: 60**

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 **A** be the fuzzy set of below average students, B be a fuzzy set of average students and C be a fuzzy set of above average students defined as 12M
$A = \{(x_1, 0.6), (x_2, 0.5), (x_3, 0.3), (x_4 0.2)\}, B = \{(x_1, 0.5), (x_2, 0.8), (x_3, 1), (x_4, 0.6)\}$,
$C = \{(x_1, 0.6), (x_2, 0.8), (x_3, 0.9), (x_4, 1)\}$. Find $(i)(A \cup B)$
$(ii)(A \cap B) \cap C$ $(iii)(A \cap B)^c$ (iv) $A^c \cap B^c$ $(v)A^c \cup B^c$ $(vi)(A\ UB)^c$

(OR)

2. 12M
Let $X = \{1, 3, 5\}$, Let R and S be the relations given by R = $\begin{matrix} & 1 & 3 & 5 \\ 1 & 0 & 1 & 0 \\ 3 & 0 & 0 & 1 \\ 5 & 0 & 0 & 0 \end{matrix}$ and S
$= \begin{matrix} & 1 & 3 & 5 \\ 1 & 0 & 1 & 1 \\ 3 & 0 & 0 & 1 \\ 5 & 0 & 0 & 0 \end{matrix}$ then $(i)R \circ S$ *by max − min composition* (ii)$R \cup S$,
$(iii)R \cap S$ $(iv)R^c$ (v) S^c $(vi)R^c \cap S^c$.

UNIT-II

3. Let X= $\{x_1, x_2, x_3\}$, $Y = \{y_1, y_2\}$ be the universal sets, 12M
$A = \left\{\frac{0.6}{x_1}, \frac{0.9}{x_2}, \frac{1}{x_3}\right\}$, $B = \left\{\frac{0.6}{y_1}, \frac{1}{y_2}\right\}$, $B' = \left\{\frac{0.5}{x_1}, \frac{0.9}{x_2}, \frac{1}{x_3}\right\}$ be the fuzzy sets. Suppose we have fuzzy propositions, Rule P: If x is A then y is B , Fact Q: y is B' then estimate A' using generalized Modus Tollens rule.

(OR)

4. For the universe $X = \{-5,5\}$, two fuzzy sets are defined as 12M
$A = \text{Zero} = \left\{\frac{0}{-2}, \frac{0.5}{-1}, \frac{1}{0}, \frac{0.5}{1}, \frac{0}{2}\right\}$, $B = \text{positive medium} = \left\{\frac{0}{0}, \frac{0.6}{1}, \frac{1}{2}, \frac{0.6}{3}, \frac{0}{4}\right\}$. (1).Construct the relation for the rule "if A then B" (2). If we introduce new antecedent
$A' = \text{"Positive small"} = \left\{\frac{0}{-2}, \frac{0.1}{-1}, \frac{0.3}{0}, \frac{0.6}{1}, \frac{1}{2}\right\}$ then using Rule P: If x is A then y is B , Fact Q: x is A' then estimate B' using generalized Modus Ponens rule

UNIT-III

5. Construct a fuzzy set using "Lagranges Interpolation" method for the following data: 12M
$\{(0,0), (0.5,0.2), (0.8,0.9), (1,1), (1.2,0.9), (1.5,0.2), (2,0)\}$

(OR)

6. Explain the method of construction of fuzzy set. Give an example. 12M

UNIT-IV

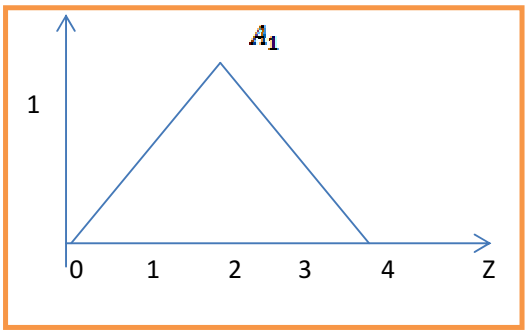
7. Explain Fuzzy Controllers with diagram and give an example. 12M

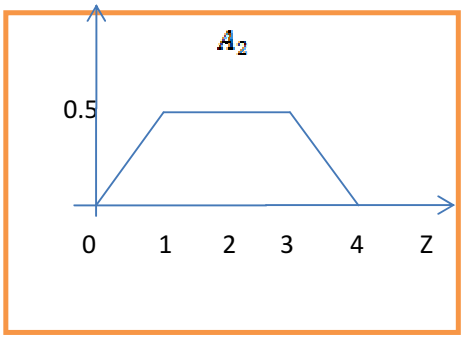
(OR)

8. Design a fuzzy controller to determine the wash time of domestic washing machine, assume that the input variables are dirt and grease on the cloth, use 3 linguistic variables for each of the input variable as for Dirt: Small Dirt(SD), Medium Dirt(MD), Large Dirt(LD) and for Grease: Small Grease (SG), Medium Grease (MG), Large Grease (LG). Assume the output variable be the wash time, and use 5 linguistic variables as Very Small wash time(VST), Small wash time(ST),Medium wash time (MT),Large wash time(LT), Very Large wash time(VLT). Find the **wash time** if dirt and grease levels are 60 and 70 respectively. 12M

UNIT-V

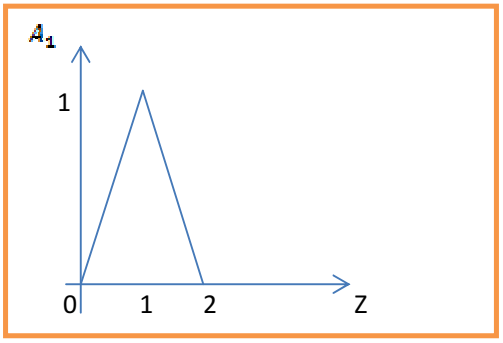
9. For the two fuzzy sets A_1 & A_2 as shown below, Calculate the defuzzified avalue of Z^* using (i) Centroid Method (ii)Center of Sums method (iii) Mean of Maxima method. 12M

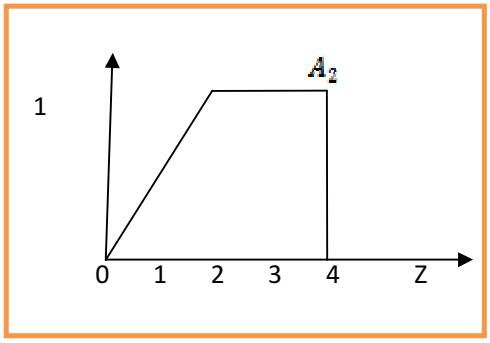




(OR)

10. For the two fuzzy sets A_1 & A_2 as shown below, Calculate the defuzzified avalue of Z^* using **(i)** Centroid Method (ii) Center of Sums method (iii) Mean of Maxima method. 12M





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AR18

CODE: 18IET324

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

III B.Tech I Semester Supplementary Examinations, November-2021

RENEWABLE ENERGY SOURCES

Time: 3 Hours **Max Marks: 60**

Answer ONE Question from each Unit
Each Questions Carry 12 Marks
All parts of the Question must be answered at one place

UNIT-I

1.	a)	Discuss the Role and potential of renewable source.	**[6M]**
	b)	Explain extraterrestrial and terrestrial solar radiation.	**[6M]**
		(OR)	
2.	a)	Define Solar energy, Solar constant.	**[6M]**
	b)	Explain the different types of instruments for measuring solar radiation with a neat diagram.	**[6M]**

UNIT-II

3.	a)	Explain the different solar applications with neat diagrams.	**[6M]**
	b)	Explain the different methods of solar energy storage.	**[6M]**
		(OR)	
4.	a)	Explain the operation of flat plate and concentrating collectors with neat diagrams.	**[6M]**
	b)	Explain solar PV energy conversion.	**[6M]**

UNIT-III

5.	a)	Explain horizontal and vertical axis windmills with neat diagrams.	**[6M]**
	b)	List the advantages of BIO-MASS? List the sources of BIO-MASS?	**[6M]**
		(OR)	
6.	a)	Define wind energy and discuss sources and potentials of wind energy.	**[6M]**
	b)	Discuss anaerobic digestion and aerobic digestion systems.	**[6M]**

UNIT-IV

7.	a)	Explain Sources and types Geo thermal energy wells.	**[6M]**
	b)	Define OTEC and discuss open cycle OTEC system.	**[6M]**
		(OR)	
8.	a)	State the advantages and disadvantages of geothermal energy?	**[6M]**
	b)	Define OTEC and discuss closed cycle OTEC and open cycle OTEC system.	**[6M]**

UNIT-V

9.	a)	Discuss about thermo electric power generator and explain about seebeck , thomsen , peliterl effect ?	**[6M]**
	b)	Discus about working principle of operation of fuel cell and advantages.	**[6M]**
		(OR)	
10.	a)	Explain the principle and operation of MHD generator.	**[6M]**
	b)	Explain the principles of direct energy conversion and examples	**[6M]**

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CODE: 18IET325 **SET-2**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

III B.Tech I Semester Supplementary Examinations, November-2021

PRINCIPLES OF MECHANICAL MEASUREMENTS

Time: 3 Hours **Max Marks: 60**

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. State and explain (a) Any four desirable static characteristics and (b)Two dynamic characteristics of an instrument. 12M

(OR)

2. Define accuracy, precision, sensitivity, repeatability, tolerance, range, span and resolution. 12M

UNIT-II

3. With a neat sketch explain working principle and operation of any one pressure gauge for measuring of pressure. 12M

(OR)

4. a) With a neat sketch explain working principle and operation of rota meter . 6M
   b) Explain working principle and operation of hot wire anemometer with a neat sketch. 6M

UNIT-III

5. Explain working principle of bimetallic thermometer with a neat diagram. And list out their advantages and disadvantages. 12M

(OR)

6. a) Briefly discuss working principle of liquid in glass thermometer with neat sketch. 6M
   b) Explain working principle of pyrometer 6M

UNIT-IV

7. Explain working principle and operation of LVDT and state their advantages, disadvantage and applications. 12M

(OR)

8. With a sketch explain working principle and operation of capacitive transducer and state their advantages, disadvantage and application. 12M

UNIT-V

9. With a neat sketch explain working principle and operation of stroboscope and list merits, demerits and applications. 12M

(OR)

10. a) Differentiate mechanical load cell with hydraulic load cell. 6M
    b) Write a short note on strain gauge load cell. 6M

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CODE: 18IET328 **SET-2**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

III B.Tech I Semester Supplementary Examinations, November-2021

JAVA PROGRAMMING

Time: 3 Hours **Max Marks: 60**

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)	List out the decision making statements available in Java. Explain with example.	**6M**
	b)	What is an operator? Explain different types of operators in java language.	**6M**
		(OR)	
2.	a)	List out the looping statements available in Java. Explain with example.	**6M**
	b)	List and explain Java Features, in detail.	**6M**

UNIT-II

3.	a)	What is a constructor? Explain constructor overloading concept with one example	**6M**
	b)	Write a java program to implement method overloading concept	**6M**
		(OR)	
4.	a)	What is a recursion? Explain with one example	**6M**
	b)	Write a java program to implement final keyword	**6M**

UNIT-III

5.	a)	What is an inheritance? Explain different types of inheritance with one example	**12M**
		(OR)	
6.	a)	Write a java program to implement Dynamic Method Dispatch	**6M**
	b)	Write a java program to implement Abstract class	**6M**

UNIT-IV

7.	a)	What is an exception? Write a java program to implement exception handling mechanism	**6M**
	b)	What is a package? Explain with one example	**6M**
		(OR)	
8.	a)	Explain the following i)try ii)catch iii)throw iv)throws	**12M**

UNIT-V

9.	a)	What is a thread? Explain thread life cycle with one example	**6M**
	b)	Explain the concept of thread priorities with one example	**6M**
		(OR)	
10.	a)	Explain thread synchronization in respect to multithreading	**6M**
	b)	Write a java program for creating multiple threads	**6M**

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CODE: 18IET329 **SET-2**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

III B.Tech I Semester Supplementary Examinations, November-2021

PYTHON PROGRAMMING

Time: 3 Hours **Max Marks: 60**

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)	Cite the features of PYTHON.	6M
	b)	Write PYTHON basic syntax rules & execute program in different modes.	6M
		(OR)	
2.	a)	Define Identifier. List out the reserved words in PYTHON.	6M
	b)	Define variable. How PYTHON handle the variables with an example.	6M

UNIT-II

3.	a)	Illustrate the use of 'else suite' with loops with an example.	6M
	b)	Illustrate loop statements (while, for, nested loops) in PYTHON.	6M
		(OR)	
4.	a)	Describe Boolean expression in PYTHON with an example?	6M
	b)	Write a PYTHON program to display numbers from 1 to 10.	6M

UNIT-III

5.	a)	Define the operation of slicing or indexing in PYTHON sequence.	6M
	b)	Define dictionary? Explore the operations on dictionaries in PYTHON.	6M
		(OR)	
6.	a)	Define **set**. Explore the operations on **set** in PYTHON.	6M
	b)	Define module. Illustrate the use of import statement with PYTHON program.	6M

UNIT-IV

7.	a)	Define Exception. Write some important built-in exceptions in PYTHON.	6M
	b)	Illustrate exception handling for try-except-else-finally blocks in PYTHON.	6M
		(OR)	
8.	a)	Explore the text processing related file operations in PYTHON.	6M
	b)	Write a PYTHON program that copies content of one file to another file.	6M

UNIT-V

9.	a)	Summarize the OOP concepts in PYTHON.	6M
	b)	Write a PYTHON program to create class and object with an example.	6M
		(OR)	
10.	a)	Illustrates the word Polymorphism with a PYTHON program.	6M
	b)	Illustrates concept of Multiple Inheritance with a PYTHON program.	6M

AR18

CODE: 18IET32A **SET-2**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

III B.Tech I Semester Supplementary Examinations, November-2021

ADVANCED CODING-I

Time: 3 Hours **Max Marks: 60**

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 Dictionary. Write various dictionary methods with example. Also explain the concept of nested dictionary. 8

   b) Given an array of integers, create a new array such that each element at index i of the new array is the product of all the numbers in the original array
   except the one at the i . construct a linear solution. 4

   Sample Test case:
   input: [1, 2, 3, 4, 5]
   output: [120, 60, 40, 30, 24]

(OR)

2. a) Define String. Explain String slicing with example. Also write methods for string manipulation. 8

   b) Write the code for the following problem. 4
   Given an array nums and a value val, removes all instances of that value in-place and print the new length and array after removal. (Don't use any extra memory).

   Sample Test case:
   input: nums= [0,1,2,2,3,0,4,2]
   val= 2
   output: 5

UNIT-II

3. a) Define Exception. Explain exception handling in python with example. 8

   b) Explain about constructor in python. Give example. 4

(OR)

4. Explain OOP principles with example(s). 12

UNIT-III

5. a) Explain Characteristics of an algorithm. 6

   b) What are Efficiency measures of an Algorithm? Explain. 6

(OR)

6. a) Design O (log n) time algorithm for computing x^n % m. 6

b) Explain the Asymptotic notations used for complexity representation. 6

Evaluate the time complexity of the following code.

```
sum = 0
for i in range(1,n+1):
    j=1
    while(j<=n):
        sum=sum + j
        j=j*3
```

UNIT-IV

7. a) What is Josephus Circle problem. Give a Solution using python. 6

b) Write the code for the following problem 6

Count trailing zeros in factorial of a number

Sample Test case:

Input : 5

Output : 1

(OR)

8. a) Write the code for the following problem. 6

Count the number of prime numbers in the given range using Sieve of Eratosthenes.

Sample Test case:

Input : 50

Output : 15

b) Write the code for the following problem 6

Given an integer array with n elements check if it contains a sub array having Zero-sum if such array exists print exists otherwise not exists.

Sample Test case:

Sample Test case:

Input:

10

3 4 -7 3 1 3 1 -4 -2 -2

Output:

Exists

UNIT-V

9. a) Implement Stack using Queues. 8

b) Differentiate Array and Linked Lists. 4

(OR)

10. a) Implement Queue using Linked List. 8

b) Write an algorithm for the following operations on Double Linked List. 4

i) Insert at the middle

ii) Delete at the middle.

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AR18

CODE: 18IET32B **SET-2**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

III B.Tech I Semester Supplementary Examinations, November-2021

COMPETITIVE PROGRAMMING-I

Time: 3 Hours **Max Marks: 60**

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)	Write a program for converting a Binary value into Octal value?	6M
	b)	Write a program for converting a HexaDecimal value into Decimal value?	6M
		(OR)	
2.	a)	How to convert an HexaDecimal value into Decimal value? Explain in detail.	6M
	b)	Check given number is prime or not using O(sqrt(n)).	6M

UNIT-II

3.	a)	Given an array of n sorted integers and a target, print the indices of the two numbers such that they add up to target using two pointer approach . input: 4 nums = [2,7,11,15] target = 9 output: 0,1 # output: Because nums[0]+nums[1]==9	6M
	b)	A person is getting ready to leave and needs a pair of matching socks. If there are n colors of socks in the drawer, how many socks need to be removed to be certain of having a matching pair. input: 5 Output: 6	6M
		(OR)	
4.	a)	Given an array arr[ ] of N positive integers, the task is to find the maximum difference between any two elements of the array. Without using sorting. input: arr[] = {2, 1, 5, 3} Output: 4 # |5 – 1| = 4	6M
	b)	Given integers b and a , find the smallest integer , such that there exists a triangle of height h , base b , having an area of at least a. input: 2 2 Output: 2	6M

UNIT-III

5.	a)	Write a java program for sorting a given list of names in ascending order.	6M
	b)	Write a java program that illustrates how java achieved Run Time Polymorphism.	6M
		(OR)	

6. a) Write a java program for abstract class to find areas of different shapes. 6M
   b) Write a java program to implement the concept of importing classes from user defined package and creating package. 6M

UNIT-IV

7. a) Write a java program to implement the concept of exception handling by using user defined exceptions. 6M
   b) Differentiate throw and throws with suitable program. 6M

(OR)

8. a) How Exception Terminates Java Program? Explain with suitable example. 6M
   b) Write a java program that implements Arithmetic Exception using built-in-Exception. 6M

UNIT-V

9. a) What is the time complexity of following code & explain in detail: 6M

```
int i, j, k = 0;
for (i = n / 2; i <= n; i++) {
    for (j = 2; j <= n; j = j * 2) {
        k = k + n / 2;
    }
}
```

   b) Write a java program for Binary Search using Recursion. 6M

(OR)

10. a) Write a java program for Tower of Hanoi problem. 6M
    b) Find out both time complexity and space complexity for linear search 6M

AR16

CODE: 16OE3031 SET-1

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
III B.Tech I Semester Supplementary Examinations, November-2021
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. The task of recognize English alphabetical characters $\{P, R, F, B, A, Z\}$ in an image processing system. Define two fuzzy sets S and T to represent the Identification of characters P and R are $P = \{(P,1),(R,0.9),(F,0.6),(A,0.5),(Z,0)\}$ $\{(P,0.9),(R,1),(F,0.4),(A,0.6),(Z,0)\}$. Find 1. $(P - R)$ 2. $P \cup R$ 3. $P \cup R^c$ 4. $Verify\ Demorgan\ laws\ (P \cup R)^c = P^c \cap R^c\ and\ (P \cap R)^c = P^c \cup R^c$ 5. $Verify\ (P^c)^c = P$, 6. $P^c \cup R$. 14 M

(OR)

2. Let $X = \{x_1, x_2\}, Y = \{y_1, y_2\}\ and\ Z = \{z_1, z_2, z_3\}$. Let R be a relation given by $\begin{matrix} \\ x_1 \\ x_2 \end{matrix}\begin{bmatrix} y_1 & y_2 \\ 0.5 & 0.3 \\ 0.2 & 0.6 \end{bmatrix}$ and S be a relation given by $\begin{matrix} \\ y_1 \\ y_2 \end{matrix}\begin{bmatrix} z_1 & z_2 & z_3 \\ 0.1 & 0.4 & 0.2 \\ 0.6 & 0.5 & 0.3 \end{bmatrix}$ then find 1. $R \circ S\ by\ max - \min composition$ 2. $R \cup S$ 3. $R \cap S$ 4. R^c 5. S^c 6. $R^c \cap S^c$ 7. $R^c \cup S^c$. 14 M

UNIT-II

3. Let X= $\{x_1, x_2, x_3\}$, $Y = \{y_1, y_2\}$ be the universal sets, $A = \left\{\frac{0.6}{x_1}, \frac{0.9}{x_2}, \frac{1}{x_3}\right\}$, $B = \left\{\frac{0.6}{y_1}, \frac{1}{y_2}\right\}$ $B' = \left\{\frac{0.5}{x_1}, \frac{0.9}{x_2}, \frac{1}{x_3}\right\}$ be the fuzzy sets. Suppose we have fuzzy propositions, Rule P: If x then y is B , Fact Q: y is B' then estimate A' using generalized Modus Tollens rule. 14 M

(OR)

4. Suppose a soil engineer wish to track the movement of soil particles under applied load in an experimental apparatus that allows viewing of soil motion. To build a pattern recognition software to enable a computer to monitor and detect the motions. Let $A = \{\frac{0.1}{x_1}, \frac{0.9}{x_2}, \frac{0}{x_3}\} B = \{\frac{0}{y_1}, \frac{1}{y_2}, \frac{0}{y_3}\}$ be fuzzy sets for a tracked particle moderately occlude behind another particle, and a lens associated with moderate image quality, respectively. Fuzzy set A is defined on a universe $X = \{x_1, x_2, x_3\}$ of tracked particle indicators and fuzzy set B defined on universe $Y = \{y_1, y_2, y_3\}$ of lens obstruction indices.
(1) Find truth value of " if x is A then y is B",
(2) Let A'= a fuzzy set in which a tracked particle is behind a particle with slight more occlusion than the particle expressed in the original antecedent A, which is given by $A' = \{\frac{0.3}{x_1}, \frac{1}{x_2}, \frac{0}{x_3}\}$. Then estimate B' using generalised Modus Ponens. 14 M

UNIT-III

5. Construct a fuzzy set using "Lagranges Interpolation" method for the following data : 14 M
$\{(0,0), (0.5,0.2), (0.8,0.9), (1,1), (1.2,0.9), (1.5,0.2), (2,0)\}$.
Draw the diagrams.

(OR)

6. a. Explain the "Direct method with one expert" in construction of a fuzzy set. Give an example. 7M

   b. Explain the "Direct method with multiple experts" in construction of a fuzzy set. Give an example. 7M

UNIT-IV

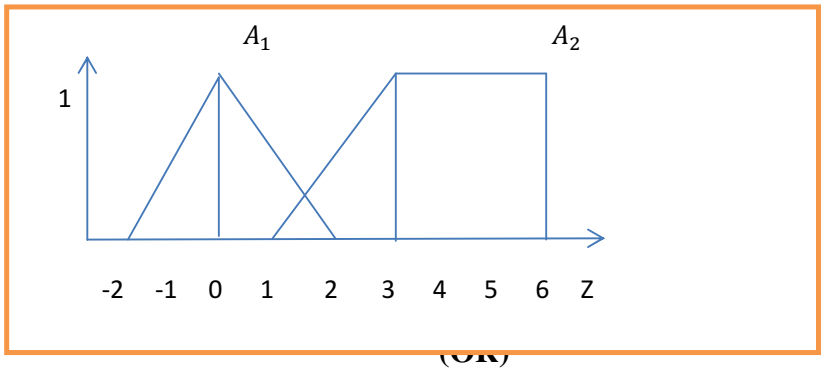
7. a. Explain Fuzzy Controllers with diagram and given an example. 7M
   b. Explain the working of "Fuzzy Rule Base". 7M

(OR)

8. a. Explain the working of "Fuzzy Inference Engine". 7M
   b. Explain the process of Fuzzification. 7M

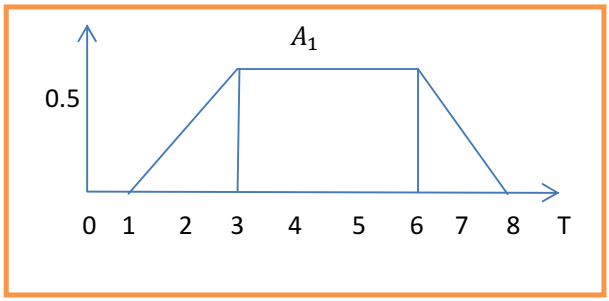
UNIT-V

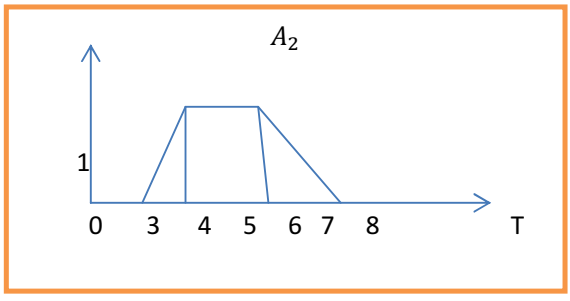
9. For the union of two fuzzy sets A_1 & A_2 as shown below, Calculate the defuzzified avalue of Z^* using (a) Centroid Method 14M
(b) Center of Sums method (c)Mean of Maxima method.



(OR)

10. Given two fuzzy sets A_1 & A_2 as shown below, Calculate the defuzzified avalue of T^* usi 14M
(a) Centroid Method, (b)Center of Sums method, (c)Mean of Maxima method.





AR16

CODE: 16OE3032 **SET-1**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

III B.Tech I Semester Supplementary Examinations, November-2021

ENVIRONMENTAL IMPT ASSESACSMENT

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 EIS and Interpret the need of environmental base maps for assessment and evaluation of a project site along with their significance.	7M
	b)	Compare and contrast the terms EIA and IEE.	7M
		(OR)	
2.	a)	Check the need for public participation during the assessment and evaluation of a project activity in an area and justify how do you support them.	6M
	b)	Characterize what is seasonal EIA and list the eight principles which guide the EIA process.	8M

UNIT-II

3.	a)	Describe how do you evaluate a road project using Cost/Benefit analysis tool.	7M
	b)	Determine what criteria's did require for the selection of concerned EIA method.	7M
		(OR)	
4.	a)	Apply simple interaction matrix method and assess environmental parameters of a paper and pulp mill.	8M
	b)	State various merits and drawbacks with an Ad-hoc method.	6M

UNIT-III

5.	a)	Determine what are the 10 evaluation parameters required for the assessment of ecosystems.	8M
	b)	Interpret the alternate remedies that are to be considered during assessment of fauna with respect to a major highway project.	6M
		(OR)	
6.	a)	Determine what kind of evaluation parameters required for the assessment of flora.	8M
	b)	List and describe any 10 important environmental and social impacts which will arise during land clearing activities.	6M

UNIT-IV

7.	a)	Characterize what is environmental compliance audit and interpret the stages involved during conducting on-site environmental audit.	7M
	b)	Determine and prioritise the parameters to be audited at on-site while visiting a chemical industry.	7M
		(OR)	
8.	a)	State the three audit objectives and determine the need to prepare the audit plan of action before conducting audit.	6M
	b)	Prepare an environmental audit report to a thermal power plant.	8M

UNIT-V

9.	a)	State the detailed functions of state pollution control boards with respect to air pollution control.	6M
	b)	Prepare an EIS draft report to a mining project for final hearing.	8M
		(OR)	
10.	a)	List the objectives and provisions stated under M V Act-1988 of India.	8M
	b)	Describe any 6 provisions provided under EPA-1986.	6M

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AR16

CODE: 16OE3035 **SET-2**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

III B.Tech I Semester Supplementary Examinations, November-2021

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 signals	7M
	b)	Find the convolution of the following signals X1(n)={4,-1,-2,2} and X2(n)={1,3,-2,-1} using matrix method	7M

(OR)

2.	a)	Find the Z-transform of following signal (i) $(1/5)^n$ u(n) (ii) u(n)	7M
	b)	Define the terms : linearity, time invariance and causality for a discrete time system with examples.	7M

UNIT-II

3.	a)	Find the DFT of the given sequence x(n)={-1,2,1,4}	7M
	b)	Find convolution between the given sequences using circular convolution method X1(n)= {1,3,3,2} and x2(n)={-1,1,3,2}	7M

(OR)

4.	a)	Explain about properties of Discrete Fourier Transform	7M
	b)	Determine the 8-point DFT of the sequence x(n) = {1,0,1,0,1,1,0,0}.	7M

UNIT-III

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

(OR)

6.	a)	Find IDFT using DIT-FFT X(K)={ 10, -2+2j, -2, -2-2j }	6M
	b)	Find DFT using DIF-FFT algorithm X(n)= {1,1,1,1,1,1,1,1}	8M

UNIT-IV

7.		Design a low pass FIR filter for the following specifications Cut off frequency=π/2,filter length=11 using Hamming 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 rectangular window	14M

UNIT-V

9.	a)	Write the steps to design an analog Butterworth 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.	a)	Write the steps to design analog Chebyshev low pass filter	4M
	b)	Determine the order of the filter and H(S) using Chebyshev approximation Given specifications pass band attenuation=3db at a frequency 1Khz and stop band attenuation=16 db at 2 Khz	10M

AR16

CODE: 16OE3036 **SET-1**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

III B.Tech I Semester Supplementary Examinations, November-2021

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)	Write a short on Social Networks ?	6M
	b)	Define affiliation networks and its major role in network analysis.	8M
		(OR)	
2.	a)	What is semantic web? Explain with an Example.	9M
	b)	What are the features of next generation web?	5M

UNIT-II

3.	a)	Explain the key concepts of social network analysis.	7M
	b)	Explain the global structure of social network.	7M
		(OR)	
4.	a)	Discuss knowledge representation and reasoning with semantic networks.	7M
	b)	What is an inference engine? Explain its role in machine intelligence.	7M

UNIT-III

5.	a)	Write a short notes on Blogs.	6M
	b)	Write short notes on Electronic Discussion networks.	8M
		(OR)	
6.	a)	Explain Blogs and Social Network features	8M
	b)	Explain Electronic sources for Network Analysis.	6M

UNIT-IV

7.		Explain clearly about the Resource Description Framework(RDF) and RDF Schema	14M
		(OR)	
8.	a)	Compare and contrast OWL with UML	7M
	b)	Explain the role of permanent node Ranker in RDF.	7M

UNIT-V

9.	a)	How the Evolution is performed through analysis?	7M
	b)	Explain how blogs and online communities from the electronic sources for network analysis.	7M
		(OR)	
10.	a)	Write a short technical note on GraphUtil.	7M
	b)	Give the general architecture of semantic web application.	7M

AR16

CODE: 16OE3037 **SET-2**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI

(AUTONOMOUS)

III B.Tech I Semester Supplementary Examinations, November-2021

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)	Write about Raster-Scan Display and Random-Scan Display.	7M
	b)	Write about Shadow-mask technique of Color CRT Monitors.	7M
		(OR)	
2.	a)	Explain working of CRT with neat diagram.	7M
	b)	Illustrate the Passive Computer Graphics and Interactive Computer Graphics, Explain each with suitable example.	7M

UNIT-II

3.	a)	Explain the steps in midpoint circle drawing algorithm and Calculate the pixels for radius is 10 and center is (0,0).	7M
	b)	Write the algorithm for Boundary fill technique.	7M
		(OR)	
4.	a)	Write the DDA Line drawing algorithm and Generate Line between (0,0) and (8,4).	7M
	b)	Explain Bresenhams Line Generation Algorithm with suitable example.	7M

UNIT-III

5.	a)	Derive the Rotation Matrix for both clock-wise and antilock-wise direction and Rotate a triangle at A(0,0) , B(6,0) and C(3,3) by 90 degrees about origin in both clockwise and anticlockwise direction.	7M
	b)	Write about general scaling directions.	7M
		(OR)	
6.	a)	Explain all 2D transformations with suitable examples.	7M
	b)	Show that the composition of two rotation is additive by concatenating the matrix representations for $R(\theta_1)\ R(\theta_2) = R(\theta_1+\theta_2)$	7M

UNIT-IV

7.	a)	Derive the window-to-viewport Transformation equations.	7M
	b)	Discuss briefly about classification of projections.	7M
		(OR)	
8.	a)	Identify the basic 3D Transformations and explain each with neat diagrams.	7M
	b)	Explain Sutherland-Hodgeman Polygon clipping algorithm.	7M

UNIT-V

9.	a)	Explain Depth-Buffer Algorithm	7M
	b)	Explain Scan-line algorithm.	7M
		(OR)	
10.	a)	What is mean by Painter's algorithm?	7M
	b)	Explain the design of animation sequence.	7M

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AR13

CODE: 13EC3017 **SET-2**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
III B.Tech I Semester Supplementary Examinations, November-2021

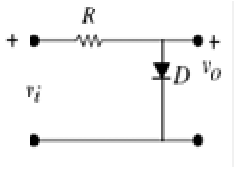
PULSE AND DIGITAL CIRCUITS
(Electrical and Electronics Engineering)

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

PART-A

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

1. a) Define Linear Wave shaping.
   b) List any two applications of RC High Pass Circuit
   c) List any two applications of Voltage Comparators.
   d) Reproduce the output waveform of the circuit if the input voltage is a sinusoidal waveform.



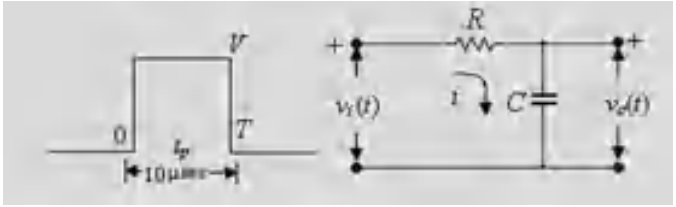
   e) State the regions in which transistor can be used as ON switch and OFF switch.
   f) State the need of commutating capacitors in bistable multi vibrator.
   g) Define Astable Multivibrator
   h) List any two applications of Time Base Generators.
   i) Draw the V-I Characteristic of a practical diode and ideal diode.
   j) Write the differences between logic gate and sampling gate.

PART-B

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

UNIT-I

2. a) Describe the operation of High Pass RC circuit for different time constants if it is excited by a pulse input. 6M
   b) A pulse with zero rise time, an amplitude of 10 V and duration 10 micro sec is applied to an amplifier through a low-pass coupling network as shown in Fig below. Plot the output to scale for f_2 = 20 MHz 6M

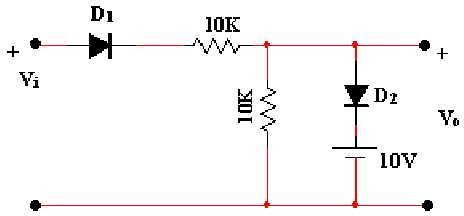


(OR)

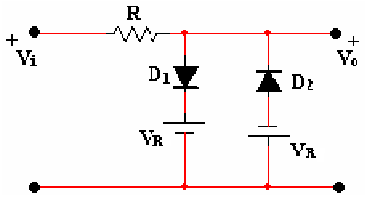
3. a) Justify that High RC circuit can be used as a differentiator. 6M
   b) Reproduce the response of a low-pass RC circuit for different time constants if the input signal given is a Square wave. 6M

UNIT-II

4. a) Identify the transfer characteristic of the clipper circuit shown below if the input V_i = 50Sinwt. Assume ideal diodes. 8M

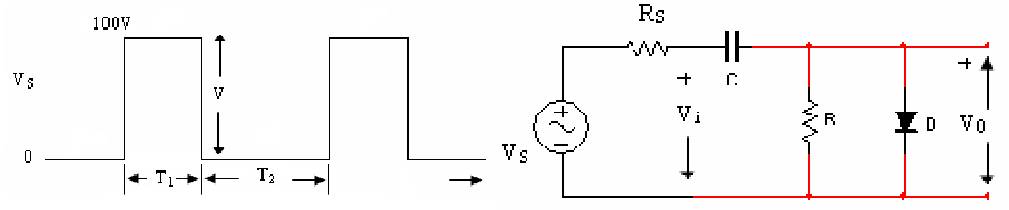


b) Explain the operation of the above circuit and draw the output waveform if the input is a sinusoidal wave. 4M



(OR)

5. a) calculate and plot to scale the steady state output of the clamping circuit shown in fig.if $R_f = R_s = 100\,\Omega$, R= 100K, C = 0.1 μF 6M



b) Explain the operation of practical clamping circuit. 6M

UNIT-III

6. a) Define delay time , storage time and rise time of transistor. 6M
   b) Explain about Forward recovery time and reverse recovery time of the diode 6M

(OR)

7. a) Explain the role of commutating capacitors in bistable Multivibrators. 8M
   b) Design a fixed bias binary with supply voltages ±12V, NPN silicon devices having $V_{CE}(sat)$= 0.2V , $V_{BE}(sat)=V_\sigma$ = 0.7V and h_{FEmin}=50 are used. Assume I_C = 5mA. 4M

UNIT-IV

8. a) Justify that an Astable multivibrator can be used as a voltage to frequency converter (VFC) and derive the expression for its time period. 6M
   b) Explain the operation of a Schmitt Trigger. 6M

(OR)

9. a) Design a collector – coupled monostable multi to obtain output pulses having 10V Amplitude and duration 1000μsec if $I_C(sat)$=10mA, $I_{B2}=2I_{B2min}$, $V_{CE}(sat)$=0.1V, $V_{BE}(sat)$=0.3V, h_{FEmin}=40. Assume R=R1=R2, 6M
   b) Explain the operation of collector-coupled Monostable multivibrator and derive the expression for its pulse duration. 6M

UNIT-V

10. a) If, e_d = Displacement error e_s =Sweep Speed error, e_t =Transmission error, show that $e_d = \frac{1}{8}e_s = \frac{1}{4}e_t$ for an exponential sweep generator. 8M
   b) Explain how Bootstrap circuit improve the linearity of sweep waveform 4M

(OR)

11. a) Copmare the performance of Miller and Bootstrap sweep generators. 4M
   b) Explain the operation of transistor Miller time base generator. 8M

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