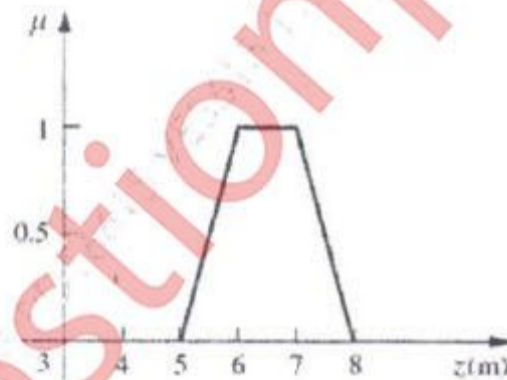
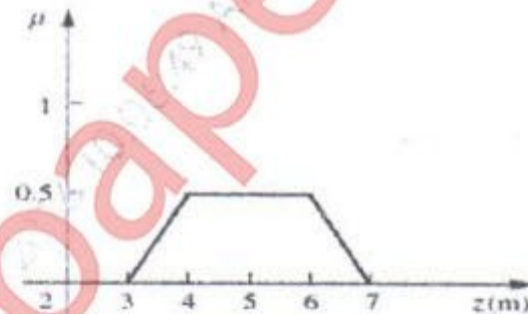
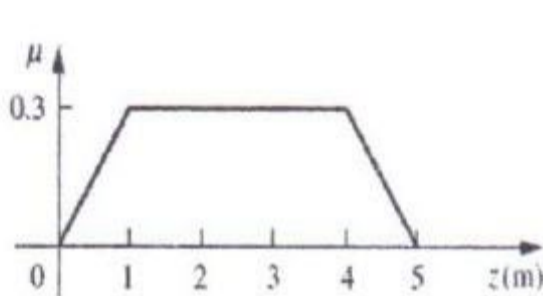


[Total Marks : 80

(3 Hours)

- N.B. :**
- 1) Question No.1 is compulsory.
 - 2) Attempt any four from the remaining six questions.
 - 3) Use of calculator is allowed.

- Q.1 (a) Draw and explain Perceptron network. Explain Perceptron Learning rule. 10
(b) What is Genetic algorithm? Explain Genetic algorithm with the help of flowchart 10
- Q.2 (a) Find aggregate fuzzy set of following fuzzy sets. And find m^* using centroid method and 08
centre of sums method.



- (b) Explain different features of Membership functions. 07
- Q.3 (a) Consider two given fuzzy sets 08
 $A = \{1/2 + 0.3/4 + 0.5/6 + 0.2/8\}$
 $B = \{0.5/2 + 0.4/4 + 0.1/6 + 1/8\}$
Perform union, intersection, difference and complement over fuzzy set A and B
- (b) Differentiate between Brain and Computer. 07

[TURN OVER]

Q.4 (a) Consider two fuzzy sets R and S

		Y1	Y2		Z1	Z2	Z3	
R =	X1	0.6	0.3	S =	Y1	1	0.5	0.3
	X2	0.2	0.9		Y2	0.8	0.4	0.7

Find Max-min composition and Max-product composition.

(b) Define artificial neural network. Explain different types of neuron network architecture in detail.

Q.5 (a) Explain architecture of Adaline (adaptive linear neuron) with its training algorithm.

(b) Explain any 2 Fuzzy decision making techniques with the help of an example

Q.6 (a) Explain Associative memory network with its types.

(b) Explain working principle of Fuzzy Inference system (FIS) with its types.

Q.7 Write short note on (any 3)

- a) Travelling Salesman Problem.
- b) Lambda cut for the fuzzy set.
- c) Crossover and Mutation operators of GA.
- d) Set of operations performed on Interval.
- e) GA v/s Traditional Algorithm.

-----X-----