

Q1. Answer any **five** questions

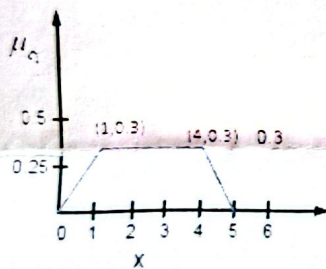
5 X 2 =10

- Prove that height (F) =1 where F is normal fuzzy set
- Let us consider the fuzzy set M on the set $U=\{a,b,c,d,e\}$ described as
 $M=0.375/a + 0.5/c + 1.0/d + 0.875/e$;
 Find out support(M), core(M)?
- Consider two fuzzy sets:
 $P=\text{Beautiful flowers}=0.3/\text{jasmine} + 0.9/\text{rose} + 1.0/\text{lotus} + 0.7/\text{daffodil}$
 $Q=\text{Fragrant flowers}= 1.0/\text{jasmine} + 1.0/\text{rose} + 0.5/\text{lotus} + 0.2/\text{daffodil}$
 Compute fuzzy sets R
 Where $R=\text{OR}(P,Q)$
- Define convex fuzzy set with the help of an example
- Let, age 0 to 35 young aged; 20 to 60 middle aged; and 45 to 80 old aged persons. Draw the membership curve and define the membership functions of "Age"
- Consider a dataset with five objects $a=1, b=2, c=4, d=5, e=6$; There are two clusters $C1: \{a,b\}$ and $C2: \{c, d, e\}$; Compute the distances between $C1$ and $C2$ using single linkage, complete linkage and avg, linkage

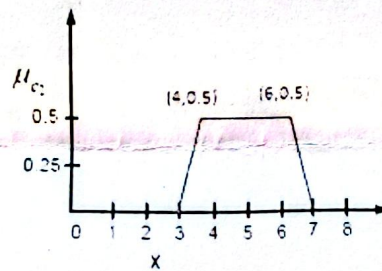
Q2. Answer any **five** questions

- Define the agents in artificial intelligence. State the differences between Uniform-cost Search Algorithm and Iterative deepening depth-first Search (1+3)=4

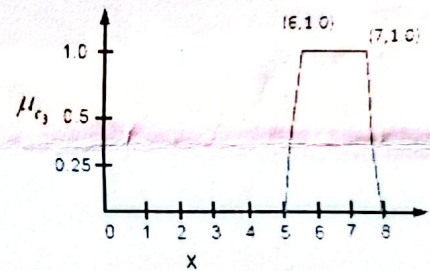
- There are three fuzzy sets A_1, A_2, A_3 in the following figure. Find out the defuzzified value of the aggregated fuzzy set (A_1, A_2, A_3) using centre of gravity method.



A1



A2



A3

- Let $A = \{\text{mimi, bob, kitty, jina}\}$ be a set of four children and $B = \{\text{tintin, asterix, phantom, mickey}\}$ be a set of four comic characters; and $C = \{\text{funny, cute, dreamy}\}$ be a set of three nature attributes. The fuzzy relations $R = x \text{ likes } y$ is defined on $A \times B$ and $S = x \text{ IS } y$ is defined on $B \times C$ as shown in Table 1A and Table 1B. Find out the fuzzy relation $T = x \text{ IS } y$ defined on $A \times C$.

Table: 1A:-- $R = x \text{ likes } y$ on $A \times B$

	Tintin	asterix	phantom	mickey
mimi	0.8	0.5	0.7	0.8
bob	0.4	0.9	0.3	0.3
kitty	0.6	0.7	0.4	0.9
jina	0.3	0.8	0.2	0.5

Table: 1B:-- $S = x \text{ IS } y$ on $B \times C$

	funny	cute	dreamy
tintin	0.6	0.7	0.3
asterix	0.8	0.4	0.2
phantom	0.1	0.2	0.1
mickey	0.9	0.8	0.3