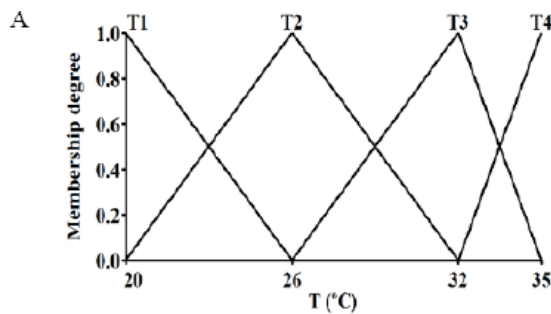


UAS SEMESTER GASAL 2021/2022

Mata Kuliah : Sistem Logika Fuzzy  
 Hari/Tanggal : Senin / 13 Desember 2021  
 Waktu : WIB (120 menit )  
 Dosen : Prof. Rolly Intan, Dr.Eng.  
 Sifat : Terbuka

1. Consider the fuzzy sets T1, T2, T3 and T4 defined on the interval X=[0,35] of real numbers by the membership grade functions



Determine mathematical formulas and graph of the membership grade functions of each of the following sets:

- a)  $\overline{T1} \cap (T1 \cup T3)$  (10 points)
  - b)  $(T1 \cup T2 \cup T3 \cup T4)^\alpha$  (10 points)
2. For each of the following binary relation on a single-set, state whether the relation is reflexive, irreflexive, or antireflexive, symmetric, asymmetric, antisymmetric, or strictly antisymmetric, and transitive, nontransitive, or antitransitive: (20 points)
3. Given the following relations.

$$M_1 = \begin{bmatrix} 1 & 0.6 & 0 & 0 \\ 0 & 0 & 0.2 & 0.3 \\ 1 & 0.9 & 0 & 0 \\ 0 & 0 & 0.4 & 0.3 \end{bmatrix} \text{ and } M_2 = \begin{bmatrix} 0.3 & 0.2 & 0 & 1 \\ 0.7 & 0 & 1 & 0.4 \\ 0.3 & 0 & 0 & 0.2 \\ 0 & 0 & 1 & 0 \end{bmatrix}$$

- a. Join between  $M_1$  and  $M_2$  (5 points)
  - b. Max-min transitive closure of  $M_1$  and  $M_2$  (10 points)
  - c. Domain and Range of  $M_2$  (5 points)
4. Consider the relation  $R(X_1, X_2, X_3)$  is given by: (40 points)

$X_1$	$X_2$	$X_3$	$R < X_1, X_2, X_3 >$
0	0	0	0.3
0	0	1	0.6
0	0	2	0.8
0	1	0	1.0
0	1	1	0.5
0	1	2	0.3
1	0	0	0.5
1	0	1	0.6
1	0	2	0.2
1	1	0	0.9
1	1	1	0.0
1	1	2	1.0

Good Luck!