Roll No:

BTECH
(SEM V) THEORY EXAMINATION 2024-25
NEURAL NETWORKS & FUZZY SYSTEM

TIME: 3 HRS   **M.MARKS: 70**

Note: Attempt all Sections. In case of any missing data; choose suitably.

SECTION A

1.   **Attempt *all* questions in brief.**   **2 x 07 = 14**

Q no.	Question	CO	Level
a.	Explain perceptron rule.	1	K3
b.	Describe unsupervised learning.	1	K3
c.	Write short note on Madaline networks.	2	K5
d.	Write the factors affecting back propagation training	2	K5
e.	Explain Product of two Fuzzy sets with example	3	K4
f.	Write the Fuzzy output variables for air conditioner.	4	K5
g.	Write the factors affecting the performance of fuzzy BP networks.	5	K3

SECTI5ON B

2.   **Attempt any *three* of the following:**   **5**   **07 x 3 = 07**

Q no.	Question	CO	Level
a.	Develop the structure of human brain with the help of neuron.	1	K3
b.	Explain single layer and multilayer perceptron neural.	2	K5
c.	Write short note on following terms i Fuzzy arithmetic ii Fuzzy to crisp conversion	3	K4
d.	Explain membership function in fuzzy logic. What is the inference in fuzzy logic?	4	K5
e.	Define the concept of a fuzzy neutron. How does it differ from traditional and probabilistic approaches to modeling systems?	5	K3

SECTION C

3.   **Attempt any *one* part of the following:**   **07 x 1 = 07**

Q no.	Question	CO	Level
a.	With neat sketch explain activation function ? Explain its use in neuron mode	1	K3
b.	Write the expression for bipolar continuous and bipolar binary activation function	1	K3

4.   **Attempt any *one* part of the following:**   **07 x 1 = 07**

Q no.	Question	CO	Level
a.	Discuss the Rosenblatt's perceptron model ?	2	K5
b.	Generate the output of logic AND function by MeCulloch Pitts neuron model	2	K5

5.   **Attempt any *one* part of the following:**   **07 x 1 = 07**

Q no.	Question	CO	Level
a.	Explain crisp set operations.	3	K4
b.	Compare and contrast classical logic and fuzzy logic.	3	K4

6.   **Attempt any *one* part of the following:**   **07 x 1 = 07**

Q no.	Question	CO	Level
a.	Explain fuzziness of fuzzy set and what is a fuzzy function ?	4	K5
b.	Explain the Different methods of defuzzification process.	4	K5

7.   **Attempt any *one* part of the following:**   **07 x 1 = 07**

Q no.	Question	CO	Level
a.	Explain the inference process in fuzzy BP. How is fuzziness propagated through layers during the inference stage	5	K3
b.	Discuss how L-R type fuzzy numbers are applied in decision-making scenarios. Provide a practical example where they are used to address uncertainty	5	K3