


Name:	
Enrolment No:	

UNIVERSITY OF PETROLEUM AND ENERGY STUDIES
End Semester Examination, May 2022

Course: Soft Computing
Program: MCA
Course Code: CSAI 7013

Semester: II
Time : 03 hrs.
Max. Marks: 100

Instructions: Use diagrams to support your explanation wherever applicable.

S. No.		Marks	CO
Q 1	What are various characteristics of soft computing?	4	CO1
Q 2	Distinguish between a feedforward network and a recurrent network?	4	CO2
Q 3	Describe the competitive process of the Self-Organising Map algorithm?	4	CO3
Q 4	Discuss Fuzzy logic controller in detail?	4	CO4
Q 5	A Hopfield network has 20 units. How many adjustable parameters does this network contain?	4	CO2

SECTION B
(4Qx10M= 40 Marks)

Q 6	Write an algorithm for K-Means clustering?	10	CO1
Q 7	Develop a counterpropagation network learning algorithm?	10	CO3
Q 8	How error correction occurs in ANNs. Explain with the help of Example?	10	CO2
Q 9	Discuss Type 2 and Interval Type-2 Fuzzy Sets. Explain with graphical representations?	10	CO4

SECTION-C
(2Qx20M=40 Marks)

Q 10	<p>A budget Airline company operates 3 plains and employs 5 cabin crews. Only one crew can operate on any plain on a single day, and each crew cannot work for more than two days in a row. The company uses all planes everyday. A Genetic Algorithm is used to work out the best combination of crews on any particular day.</p> <p>a) Suggest what chromosome could represent an individual in this algorithm?</p> <p>b) Suggest what could be the alphabet of this algorithm? What is</p>	20	CO1
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	its size? c) Suggest a fitness function for this problem.		
Q 11	Explore the performance of fuzzy system-based medical image processing for predicting the brain disease. Explain the role of Fuzzy and write algorithm for predicting the disease.	20	CO3