

Reg.No.:



VIVEKANANDHA COLLEGE OF ENGINEERING FOR WOMEN
 [AUTONOMOUS INSTITUTION AFFILIATED TO ANNA UNIVERSITY, CHENNAI]
 Elayampalayam – 637 205, Tiruchengode, Namakkal Dt., Tamil Nadu.

Question Paper Code: 7019

B.E. / B.Tech. DEGREE END-SEMESTER EXAMINATIONS – MAY / JUNE 2024

Sixth Semester

Electronics and Communication Engineering

U19ECV64 - SOFT COMPUTING

(Regulation 2019)

Time: Three Hours

Maximum: 100 Marks

Answer ALL the questions

Knowledge Levels (KL)	K1 – Remembering	K3 – Applying	K5 - Evaluating
	K2 – Understanding	K4 – Analyzing	K6 - Creating

PART – A

(10 x 2 = 20 Marks)

Q.No.	Questions	Marks	KL	CO
1.	Identify the use case of fuzzy systems.	2	K2	CO1
2.	Mention the limitations of Fuzzy system.	2	K2	CO1
3.	Outline the steps involved in downhill simplex search.	2	K2	CO2
4.	Infer the role of fitness function in Genetic Algorithm.	2	K2	CO2
5.	What is the significance of error signal in perceptron network?	2	K1	CO3
6.	List the issues related to knowledge acquisition.	2	K1	CO3
7.	What is the role of membership function in fuzzy logic?	2	K2	CO4
8.	Define Neuro-Fuzzy Spectrum.	2	K1	CO4
9.	Identify the role of computational intelligence in Inverse Kinematics Problems.	2	K2	CO5
10.	State the function of computational intelligence in Automobile Fuel Efficiency Prediction.	2	K2	CO5

PART – B

(5 x 13 = 65 Marks)

Q.No.	Questions	Marks	KL	CO
11. a)	Explain with neat block diagram the various components of a fuzzy logic system and mention the fuzzy propositions.	13	K2	CO2
	(OR)			
b)	Explain Mamdani Fuzzy Models, Sugeno Fuzzy Models and Tsukamoto Fuzzy Models with necessary diagrams.	13	K2	CO1
12. a)	Enumerate the Steepest Descent method with suitable example.	13	K2	CO2
	(OR)			
b)	Discuss in detail about simulated annealing approach.	13	K2	CO3
13. a)	Elaborate the issues associated with knowledge Representation and suggest a solution for them.	13	K2	CO3
	(OR)			
b)	Describe different techniques involved in Heuristic search.	13	K2	CO3
14. a)	Explain the concepts of Coactive Neuro Fuzzy Modeling.	13	K2	CO4
	(OR)			
b)	Describe the Adaptive Neuro-Fuzzy Inference Systems with a neat architecture diagram.	13	K2	CO4
15. a)	Explain how computational intelligence can be used in PCR.	13	K2	CO5
	(OR)			
b)	Discuss about Soft Computing technique for Color Recipe Prediction with suitable example.	13	K2	CO5

PART – C

(1 x 15 = 15 Marks)

Q.No.	Questions	Marks	KL	CO
16. a)	i. Find the algebraic product of two fuzzy sets 'A' and 'B' where $A = \{(3, 0.8) (5, 0.6) (6, 0.9)\}$ and $B = \{(3, 0.7) (4, 0.8) (5, 0.3)\}$ and discuss the methods of aggregation of fuzzy rules.	15	K3	CO4
	(OR)			
b)	Given $A = \{1/2 + 0.5/3 + 0.3/4 + 0.2/5\}$, $B = \{0.5/2 + 0.7/3 + 0.2/4 + 0.4/5\}$, Find A' , B' , $A \vee B$, AB , $A B$, $A'A$, $B'B$.	15	K3	CO1