



ADMISSION NUMBER

School of Computing Science and Engineering

**Bachelor of Science in Computer Science
Semester End Examination - Aug 2024**

**Duration : 180 Minutes
Max Marks : 100**

Sem VI - E1UP604B - Soft Computing

General Instructions

Answer to the specific question asked

Draw neat, labelled diagrams wherever necessary

Approved data hand books are allowed subject to verification by the Invigilator

- | | | |
|-----|--|--------|
| 1) | In Fuzzy Logic, what is the purpose of the "fuzzy inference system"? | K1(2) |
| 2) | Interpret the significance of identifying rule-based structures in adaptive systems. | K2(4) |
| 3) | Explain exploration and exploitation in optimization problems with suitable examples. | K2(6) |
| 4) | Demonstrate the significance of representation trees in feature selection for machine learning models. How do these trees aid in reducing dimensionality while preserving essential information? | K3(9) |
| 5) | Consider a population of individuals with fitness scores:

[20,15,30,25,18] | K3(9) |
| | Apply the survival of the fittest concept to select the top 3 individuals based on their fitness scores. | |
| 6) | What are genetic algorithms? Deduce the operators in GA. | K5(10) |
| 7) | Point out the differences between conventional computers and ANN | K4(12) |
| 8) | How do Neural Networks Work? If a neural network has 3 input neurons and 2 output neurons, how many weights would there be in the network? Identify and evaluate some of the challenges and limitations associated with neural networks. | K5(15) |
| 9) | Synthesize your understanding of fuzzy systems and their applications and suggest where you can implementation of a fuzzy control system for a real-world problem. | K5(15) |
| 10) | Design the architecture based on back-propagation learning. | K6(18) |