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School of Computing Science and Engineering

Bachelor of Science in Computer Science

Semester End Examination - May 2024

Duration : 180 Minutes

Max Marks : 100

Sem VI - E1UP605B - Artificial Intelligence and Machine Learning

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) State the concept of Machine Learning. K1 (2)
- 2) Explain Utility based agents briefly. Draw its diagram. K2 (4)
- 3) Explain the concept of feature extraction in unsupervised learning. K2 (6)
- 4) What do you understand by Cognitive abilities in AI? Prepare your answer. K3 (9)
- 5) Illustrate the purpose of cross-validation and how it helps in assessing model performance. K3 (9)
- 6) Evaluate the advantages and disadvantages of AI with suitable examples. K5 (10)
- 7) When would the best first search be worse than the simple breath first search? Explain your answer. K4 (12)
- 8) Consider the following sentences: K5 (15)
 - a) John likes all kinds of food
 - b) Apples are food
 - c) Anything anyone eats and isn't killed by is food
 - d) Bill eats peanuts and is still alive
 - e) Sue eats everything Bill eats

Answer the following questions:

- i) Assess all the sentences into formulas in predicate logic.
 - ii) Convert formulas from the previous step into clause form.
 - iii) Prove that John likes Peanuts using resolution.
- 9) Summarize various crossover and Mutation operators in the Genetic Algorithm. K5 (15)

