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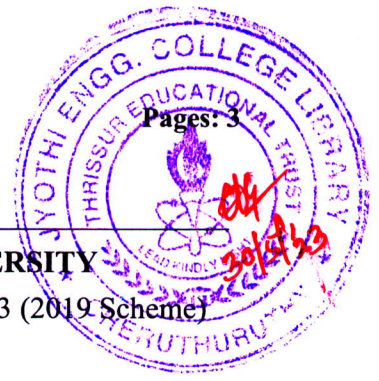
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Reg No.: _____

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APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

Seventh Semester B.Tech Degree (S, FE) Examination May 2023 (2019 Scheme)



Course Code: CST401

Course Name: ARTIFICIAL INTELLIGENCE

Max. Marks: 100

Duration: 3 Hours

PART A

Answer all questions, each carries 3 marks.

Marks

- | | | |
|----|---|-----|
| 1 | What is Turing Test? Give its significance in the field of Artificial Intelligence. | (3) |
| 2 | Describe in detail the four categories under which AI is classified with. | (3) |
| 3 | What is a Rational agent? Explain. | (3) |
| 4 | List any three advantages of Depth First search. | (3) |
| 5 | What are the components of a Constraint Satisfaction Problem? Illustrate with an example. | (3) |
| 6 | Define Alpha-Beta Pruning. | (3) |
| 7 | Give the definition of Propositional logic. | (3) |
| 8 | Explain the term Skolemization. | (3) |
| 9 | State and explain Ockham's razor principle. | (3) |
| 10 | Explain about Supervised Learning. | (3) |

PART B

Answer any one full question from each module, each carries 14 marks.

Module I

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| 11 | a) Describe in detail about different types of Agent programs with suitable figures. | (8) |
| | b) Explain 6 applications of AI in detail. | (6) |

OR

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|----|--|-----|
| 12 | a) Define PEAS in AI. For the following activities, give a PEAS description of the task environment and characterize it in terms of the task environment properties.
a) Medical Diagnosis system
b) Bidding on an item at an auction | (7) |
| | b) What are the properties of Task Environment? Explain. | (7) |

Module II

- 13 a) Discuss the heuristic function. Explain how the heuristic function helps during search procedure. Explain with a suitable example (7)
- b) Evaluate a problem as a state space search with an example. (7)

OR

- 14 a) Discuss any two uninformed search strategies in intelligent systems with examples. (9)
- b) Write A* algorithm and list the various observations about algorithm. (5)

Module III

- 15 a) What is local consistency in CSP constraint propagation? Explain different types of local consistencies. (10)
- b) Write an Arc-Consistency algorithm (AC-3). (4)

OR

- 16 a) How and when heuristic is used in Minimax search technique? Illustrate with an example. Also describe an algorithm for Minimax procedure. (8)
- b) Solve the following Crypt arithmetic problem using constraints satisfaction search procedure. (6)

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APPLE	MONEY

Module IV

- 17 a) What is a knowledge-based agent? How does it work? Write an algorithm for Knowledge based agent. (7)
- b) Illustrate the use of First Order Logic to represent Knowledge. (7)

OR

- 18 a) Suppose my knowledge base consists of the facts (5)
- $$S \wedge T \Rightarrow \neg(\neg P \wedge R), \neg\neg S, T$$
- And need to prove **P** is entailed. Use rules of inference to do this.
- b) Differentiate Forward Chaining and Backward Chaining with their algorithms. (9)

Module V

- 19 a) Give the significance of Learning from examples. Explain the various types of Learning in problem solving. (7)

- b) How do we evaluate and choose the best hypotheses that fits the future data? (7)
Explain with a suitable method.

OR

- 20 a) Explain learning in Decision Tree with example. (8)
b) What do you meant by Linear classification with logistic regression? Explain. (6)
