

Roll No.

Total Pages : 03

020402

May 2024

B. Tech. (RAI) (Fourth Semester)

Artificial Intelligence (PCC-RAI-402-21)

Time : 3 Hours]

[Maximum Marks : 75

Note : It is compulsory to answer all the questions (1.5 marks each) of Part A in short. Answer any *four* questions from Part B in detail. Different sub-parts of a question are to be attempted adjacent to each other.

Part A

1. (a) What are the different task domains of AI? 1.5
- (b) Explain the criteria to check the success of a machine. 1.5
- (c) Write any *two* problems associated with FOPL. 1.5
- (d) What do you mean by problem reduction in AI? 1.5
- (e) What is the difference between Weak AI and Strong AI? 1.5

- (f) List the advantages and disadvantages of Best first search algorithm. 1.5
- (g) Explain mapping between facts and representations using suitable diagram. 1.5
- (h) Define ADL. 1.5
- (i) What is semantic processing in NLP ? 1.5
- (j) Define Induction Learning. 1.5

Part B

- 2. (a) Explain the A* algorithm. Why is it called an admissible algorithm ? 10
- (b) Check whether the set of statements "I will be wet if it rains and I go out of the house. It is raining now. I go out of the house. I will not be wet." Are consistent or inconsistent using semantic tableau ? 5
- 3. (a) What are the problems associated with hill climbing ? How can they be resolved ? 5
- (b) What is NLP ? Also explain Discourse and Pragmatic Processing. 10
- 4. What is an Expert System ? What are its characteristics ? Explain each and every component of Expert System Development Life Cycle in brief. 15

- 5. (a) "Mary will get her degree only if she registers as a student and passes her exam. She has registered herself as a student. She has passed her exam." Show that she will get a degree. Solve using resolution refutation method. 5
- (b) What is Genetic Algorithm ? For what kind of problem Genetic Algorithm ? 10
- 6. (a) How does Demster Shafer Theory differ from Bayesian Reasoning. 10
- (b) What is learning in AI ? How does a computer learn ? Explain Rote Learning and Explanation based learning in detail. 5
- 7. Write short note on the following : 15
- (a) Constraint Satisfaction Problem
- (b) Fuzzy Reasoning
- (c) Hidden Markov Model