

Roll No.

Total No. of Pages : 03

Total No. of Questions : 09

M.Sc. (Computer Science) (Sem.-4)

**ARTIFICIAL INTELLIGENCE**

Subject Code : MSC-402

M.Code : 72420

Date of Examination : 07-07-22

Time : 3 Hrs.

Max. Marks : 60

**INSTRUCTIONS TO CANDIDATES :**

1. SECTIONS-A, B, C & D contains TWO questions each carrying TEN marks each and students have to attempt any ONE question from each SECTION.
2. SECTION-E is COMPULSORY consisting of TEN questions carrying TWENTY marks in all.

**SECTION-A**

1. What is Artificial Intelligence? Explain how an AI system is different from a conventional computing System.
2. What is first order Predicate Logic? Explain the syntax and semantics of first Order Predicate Logic.

**SECTION-B**

3. Discuss the various strategies for state space search. How do you use the state space to represent reasoning with the predicate calculus? Explain with the help of an example.
4. What are the various types of Grammars in Artificial intelligence? What are the various types of grammar Languages? Explain in detail.

**SECTION-C**

5. Explain the recognition and classification process in Pattern recognition.
6. What is an expert system? What are the types of architectures of Expert systems? Explain in detail.

## SECTION-D

7. Consider the following sentences :
- a. John likes all kinds of foods.
  - b. Apples are food.
  - c. Chicken is food.
  - d. Anything anyone eats and is not killed by is food.
  - e. Bill eats peanuts and is still alive.
  - f. Sue eats everything Bill eats.
- (i) Translate the above sentences in predicate logic.
  - (ii) Prove that John likes peanuts using backward chaining.
  - (iii) Convert the formulas of part a in clausal form.
  - (iv) Prove that John likes peanuts using resolution.
  - (v) Use resolution to answer the question “*What food does Sue eat?*”?
8. a. Explain important string functions in PROLOG.
- b. Compare Logic programming and PROLOG.

## SECTION-E

9. **Write briefly :**
- (a) Define knowledge base.
  - (b) How syntactic and semantic processing are different?
  - (c) How does the rules in PROLOG differ general production system rules?

- (d) Why is it important that the Expert system is able to explain the why and how questions related to a problem solving session?
- (e) State the relationship between the terms “*Intelligence*” and “*Knowledge*”.
- (f) What is Logic Programming?
- (g) What is natural language processing?
- (h) What are ES-shells?
- (i) What are computable functions and predicates?
- (j) What is the meaning of knowledge?

**NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.**