

Roll No.

Total No. of Pages : 02

Total No. of Questions : 09

M.C.A. (Sem.-4)

ARTIFICIAL INTELLIGENCE

Subject Code : MCA-405 A

Paper ID : [B0119]

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTION TO CANDIDATES :

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

SECTION-A

1. (a) Define a unifier and a most general unifier to a set of clauses. Give suitable examples.

(b) Describe the important properties of first order valuation with example.

2. Consider the following facts :

(a) Marcus was a man.

(b) Marcus was a Pompeian.

(c) Marcus was born in 40 A.D.

(d) All men are mortal.

(e) All Pompeian died when the volcano erupted in 79 A.D.

(f) No mortal lives longer than 150 years.

(g) It is now 2010.

(h) Alive means not dead.

(i) If someone dies, then he is dead at all later times.

Represent these facts in predicate logic. Resolve the following using resolution in predicate logic : "Marcus is dead".

SECTION-B

3. (a) Write a program in LISP function to calculate the factorial of 'n' using recursion
(b) Describe the statements that control program flow in PROLOG.
4. (a) Analyze the following statement of Prolog : "Negation as failure allows easy definition of many relations."
(b) Discuss the important uses of CGI in prolog.

SECTION-C

5. Describe the structured methods used to represent knowledge with suitable example.
6. Discuss how the followings might deal with uncertainty:
 - (a) Monotonic Reasoning
 - (b) Non-Monotonic Reasoning

SECTION-D

7. Describe the various methods used for the semantic analysis of Natural Language processing with examples.
8. Explain how the final meaning of the sentence is generated in Natural Language processing with suitable examples.

SECTION-E

9. Write short notes on :

- (a) Define artificial intelligence.
- (b) What are the problems in knowledge acquisition?
- (c) Write a program in Prolog for concatenating two strings.
- (d) What do you understand by knowledge manipulation?
- (e) Describe the properties of AI languages.
- (f) Differentiate between natural languages and computer languages.
- (g) What do you understand by Inference mechanism in expert system?
- (h) Give unification algorithm. (8×2.5=20)