[Total No. of Questions - 9] [Total No. of Printed Pages - 3]
(2066)

16116(J) June-16

B. Tech 6th Semester Examination

Artificial Intelligence (NS)

CS-324/IT-323

Time : 3 Hours **Max. Marks : 100**

The candidates shall limit their answers precisely within the answer-book (40 pages) issued to them and no supplementary/continuation sheet will be issued.

Note : Attempt five questions in all by selecting one question from each of the section A, B, C and D and all the sub-parts of section E.

SECTION - A

1. (a) Write algorithm for Hill Climbing Search. Discuss the problem of local maximum and ridge in Hill Climbing Search procedure. (10)

   (b) Discuss the technique of Means-End Analysis. What can be the problems in applying this algorithm? (10)

2. (a) What is Predicate Logic? With suitable examples, explain the steps needed to convert a WFF in predicate logic to its equivalent clause form. (10)

   (b) Compare Forward reasoning Vs Backward reasoning. (10)

SECTION - B

3. (a) What are the most commonly used Lisp functions? (10)

   (b) What is an anonymous variable in PROLOG? Discuss the scope of an anonymous variable. (10)

[P.T.O.]

4. (a) Define artificial neural network. What is meant by multilayer ANN? (10)

   (b) Discuss a few tasks that can be performed by a back propagation network. (10)

SECTION - C

5. Name and describe the main features and working of Genetic Algorithms (GA). (20)

6. What is the purpose of expert system MYCIN? Explain how uncertainty is propagated through a chain of rules during a consultation with an expert system which is based on the MYCIN architecture. (20)

SECTION - D

7. (a) What do you understand by SWARM Intelligence? What is the basic idea behind the notion of SWARM Intelligence? (10)

   (b) Explain and discuss Ant Colony system and its working. (10)

8. (a) Given the grammar and lexicon below, show the final chart for the following sentence after applying the bottom-up chart parser. Remember that the final chart contains all edges added during the parsing process.

   S→VP
   VP→Verb NP
   NP→NP PP
   NP→Det Noun
   PP→Prep Noun

   Det→the
   Verb→Find
   Prep→in
   Noun→men | suits

   "Find the men in suits" (10)

(b) What is ELIZA? Write a short note on ELIZA along with necessary illustrations. (10)

SECTION - E

9. (a) Differentiate between Heuristic and Brute Force search.

(b) What is the difference between Procedural knowledge and Declarative knowledge?

(c) Explain rules of Inference.

(d) Describe the type of programming problems for which LISP is well suited.

(e) Differentiate Cut predicate and Fail predicate in PROLOG.

(f) What is Boltzman machine?

(g) Write short note on Genetic operators.

(h) What should be the characteristics of an expert system?

(i) What is PSO algorithm?

(j) What is difference between top down and bottom up parsing? (10×2=20)