C 5713 (Pages : 2) Name.....

Reg. No.....

EIGHTH SEMESTER B.TECH. (ENGINEERING) DEGREE EXAMINATION, JUNE 2005

CSE

CS 2K 803—ARTIFICIAL INTELLIGENCE

(New Scheme)

Time : Three Hours Maximum : 100 Marks

Part A

Answer **all** *questions.*

I. 1 What are called a state-space graph ? What are its advantages ?

2 Explain the heuristic repair approach for problem solving.

3 What is called PSAT problem ? How can it be solved using conjuctive normal form formulas ?

4 What are the various quantifiers in predicate calculus ? Explain their semantics.

5 Define the term Genetic programming. Explain the GP process briefly.

6 Explain the basic structure of a rule based expert system.

7 Explain the use of CAR and CDR functions in LISP.

8 "LISP is neither call-by-reference nor call-by-value". Justify this statement.

(8 × 5 = 40 marks)

Part B

Answer **one** *question from each unit.*

UNIT I

II. (a) List and explain some of the ways of representing and implementing action functions.

Or

(b) Write the A* algorithm and explain its working with an example.

UNIT II

III. (a) Explain with an example how to convert arbitrary wffs to clause form in predicate calculus.

Or

(b) (i) Convert the following propositional calculus wff into clauses.

$\neg [((P \vee \neg Q) \supset R) \supset (P \wedge R)]$

(ii) Write down the search strategies of revolution regulation.

Turn over

UNIT III

IV. (a) Write notes on neural networks explaining the back-propagation method.

Or

(b) What are Bayes Networks ? Explain the various patterns of inference in Bayes Networks.

UNIT IV

V. (a) What are arrays ? How to initialise arrays in LISP ? Give an example to illustrate the use of arrays.

Or

(b) Define HILL, a search program that does hill climbing in a tree, such that the new elements of the queue are sorted and then added to the front.

(4 × 15 = 60 marks)