B.TECH. DEGREE VI SEMESTER EXAMINATION IN
COMPUTER SCIENCE AND ENGINEERING
NOVEMBER 2001

CS 603 ARTIFICIAL INTELLIGENCE

(1998 Admissions)

Time: 3 Hours Maximum Marks: 100

I. (a) Explain the term 'artificial intelligence'. Give an example of an AI technique. (8)
(b) What are the problems with hill climbing? Explain each one. (12)

OR

II. (a) Explain with a suitable example how Alpha-Beta pruning reduces search in a game tree. (12)
(b) What is learning? (8)

III. (a) What is parsing? Explain any one parsing technique used in Natural Language understanding. (10)
(b) Consider the following sentence:
'Put the red block on the blue block on the table'.
Show any two syntatically valid parses of the sentence. Assume any standard gramatic formalism you like. (10)

OR

IV. (a) What do you understand by the term Natural Language Processing?
Discuss the applications of Natural Language Processing. (10)
(b) Give any two conceptual dependancy interpretations of the sentence.
"John went to the park with the peacocks". (10)

V. (a) Distinguish between forward chaining and backward chaining. What are the factors to be considered in deciding whether forward or backward chaining must be used? (10)
(b) Briefly describe the important features of PROLOG. (10)

OR

VI. (a) Explain the following giving a suitable example for each.
(i) Semantic nets
(ii) Minsky frames (10)
(b) Consider the following sentences:
. John likes all kinds of food.
. Apples are food
* Chicken is food.
* Anything anyone eats and isn't killed by is food.
* Bill eats peanuts and is still alive.
Prove that John likes peanuts using backward chaining. (10)

VII. (a) What is an Expert system. How is it different from a conventional program? (8)
(b) Explain the DENDRAL expert system's major features. (12)

OR

VIII. (a) Explain the major steps involved in building an Expert system. (10)
(b) Discuss the limitations of current expert systems. (10)

IX. (a) Explain the major design issues in a Speech Recognition System. (12)
(b) Briefly explain the techniques used in speech recognition systems. (8)

OR

X. Explain the Walt'z procedure. Illustrate with an example. (20)