

Bachelor in Information Technology (BIT)**Term-End Examination****June, 2007****CSI-23 : TECHNIQUES OF ARTIFICIAL INTELLIGENCE***Time : 2 Hours**Maximum Marks : 60*

Note : *There are two sections in this paper. Section A is compulsory. Answer any two questions from Section B.*

SECTION A

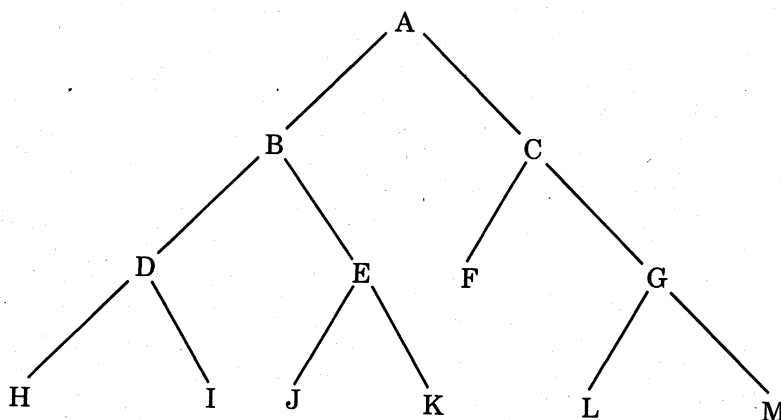
1. For each of the following statements, state whether it is *true* or *false* : 10
- (i) LISP was invented by Alan Turing.
 - (ii) Backward chaining is one form of inferencing.
 - (iii) In a search space goal states are defined.
 - (iv) 'Null' is a valid LISP predicate which returns value true if the expression has one argument.
 - (v) Property lists are used to define properties of atoms.
 - (vi) 'Learning' is an essential feature of an expert system.
 - (vii) 'Heuristic Knowledge' is one form of essential knowledge..
 - (viii) A 'horn clause' can have maximum two literals.
 - (ix) Hill climbing search technique is uninformed search technique.
 - (x) LISP is a pure functional language.
2. Define the following : 10
- (i) Knowledge manipulation
 - (ii) Hypothesis
 - (iii) Mapping functions in LISP
 - (iv) Logical consequence
 - (v) Formal system

3. Consider following sentence : 5
"Birds are flying."
Prepare semantic net for this sentence.
4. Differentiate between binary resolution and linear resolution. Give an example of each. 5

SECTION B

Attempt any *two* questions from this section.

5. (a) Explain the difference between forward and backward chaining. Under what conditions would each be best to use for a given set of problems ? 5
- (b) Write a function in LISP to calculate sum of squares of first five integers. 5
- (c) Write any 5 limitations of AI. 5
6. (a) Consider the following tree :



List the elements for

- (i) Breadth first search
- (ii) Depth first search 5
- (b) Design a variable binding to match the following lists :
- (i) (abc (d(a)) f), (?x bc (d ?y) ?z)
- (ii) (*x ab (cd) *x), ((ef) ab *y ef) 5
- (c) Explain five applications of Fuzzy logic. 5
7. (a) Differentiate between exact reasoning and inexact reasoning. Give an example of each. 8
- (b) With the help of an appropriate diagram, explain the general architecture of an expert system. 7

