

ADIT / BIT PROGRAMME

Term-End Examination

December, 2010

00775

**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 **10** whether it is *True* or *False* :
- (a) Conventional program work with numbers and do numeric computation.
 - (b) Expert System work with symbols.
 - (c) A rule based system is also called production rule system.
 - (d) A node represent a concept and a link represent relationship between two nodes.
 - (e) A rule is applied only when its' right hand conditions are satisfied.

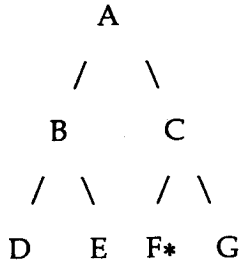
- (f) List cannot be empty.
- (g) Procedures that come with LISP are called primitives.
- (h) Constructors create old data.
- (i) REVERSE turns the individual elements of a list around when those elements are lists.
- (j) Parameter variables bindings are established when a function is entered.

2. Define the following : 10
- (a) De Morgan's law
 - (b) Binary Resolution
 - (c) Inductive Inference
 - (d) Completeness property
 - (e) Functions with respect to FOPL.
3. Express the sentence 'Sam gave Mary a box of Candy' as Conceptual Dependency Structure. 5
4. Explain Modus Ponens and Chain Rule. Give an example of each rule. 5

SECTION - B

Attempt *any two* questions from this section.

5. (a) Differentiate between Expert Systems and Conventional programs. 5
- (b) Define a function called rotate that takes a list and rotates the elements by one position. 5
i.e (rotate (a b c d)) returns (D A B C)
- (c) Explain travelling salesman problem. 5
6. (a) Write the algorithm for DFS. Enlist the status of queue after each operation to search the node F in following tree : 6



- (b) Discuss important issues to be considered for Knowledge Representation. 4
- (c) Transform the following sentence into CNF. 5

$$(P \rightarrow Q) \rightarrow R$$

7. (a) Explain any three applications where Embedded System are used. 5
- (b) Find the following sentence is Satisfiable, Contradictory or Valid. 4
- (i) $S: P \rightarrow Q \rightarrow \sim P$
- (ii) $S: (P \vee Q) \rightarrow (P \wedge Q)$
- (c) Explain the steps of Clausal Conversion. 6
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