2011

Time : 3 hours

Full Marks : 80

Candidates are required to give their answers in their own words as far as practicable.

The figures in the margin indicate full marks.

Answer from both the Groups as directed.

Group – A

(Objective Type Questions)

(Compulsory)

Answer all questions.

1. Choose the correct answer of the following : 

   \[ 2 \times 10 = 20 \]

   (a) Expert System whose knowledge is represented in rule form is called ______ based system.

   (i) Prolog

   (ii) Rule

JX – 31/2

(Turn over)
(iii) Schema
(iv) Knowledge

(b) The DFS is preferred over the BFS, when the search tree is known to have a _____ number of goals.
(i) Complex
(ii) Cutoff
(iii) Deep
(iv) Plentiful

(c) Mycin operated using a fairly simple inference engine, and knowledge base of about _____ rules.
(i) 400
(ii) 600
(iii) 700
(iv) 500

(d) A central issue in knowledge representation is _____
(i) Retrieval
(ii) Fetch
(iii) Execute
(iv) None of the above

(e) _____ is using a system to monitor data
during the liquid oxygen tanking process.

(i) NCR
(ii) NASA
(iii) IBM
(iv) Intel

(f) A syntax or sentence holds various _____,
where each symbol holds a proposition that
can either be true or false.

(i) Adequacy Symbols
(ii) Propositional Symbols
(iii) Representational Symbols
(iv) None of the above

(g) _____ was an influential pioneer project in
AI of the _____ and the computer software
expert system that it produced.

(i) Expert, 1960
(ii) Expert, 1970
(iii) Dendral, 1960
(iv) Dendral, 1970

(h) MIT stands for:
   (i) McCarthy Institute of Technology
   (ii) Mellon Institute of Technology
   (iii) Massachusetts Institute of Technology
   (iv) None of the above

(i) The Plan-Generate-Test Paradigm is the organization of the problem-solving method, and is a common paradigm used by both _____ system and _____ system.
   (i) Heuristic Dendral, Meta-Dendral
   (ii) Expert, Meta
   (iii) Expert, Dendral
   (iv) None of the above

(j) A sentence can be formed by combining simpler sentences using the _____.
   (i) Expert System
   (ii) Knowledge Representation
   (iii) Logical Connectives
   (iv) None of the above
Group – B

(Long-answer Type Questions)

Answer any four questions: \[ 15 \times 4 = 60 \]

2. Explain Artificial Intelligence (AI). Give the task domains of AI and also discuss the properties of knowledge.

3. What is chronological backtracking? Distinguish between Depth-First Search and Breadth-First Search.


5. Illustrate, how to define a problem as a state space search with a suitable example.

6. Define the term "Logic". Write short notes on Uniqueness Quantifier and Uniqueness Operator.

7. What do you mean by FOL? Explain with example. Also differentiate between Propositional and FOL logic.

JX – 31/2  (5)  (Turn over)
8. What are the knowledge representations supported by Expert System Tools? Explain the rule based systems with example.