BCA(III) — COMP/3/
XXI/11

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

    (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 is 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.

4. What is Heuristic ? Discuss its functions. How is it useful for combinatorial problems ? Explain with suitable example.

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.

8. What are the knowledge representations supported by Expert System Tools ? Explain the rule based systems with example.

9. Write the structure of an Expert System ? Discuss Knowledge Base, Facts, Rules, Interpreter, Scheduler and Inference Engine.

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