

**J-FB-22-00307****B. Tech. EXAMINATION, 2022**

Semester V (CBCS)

ARTIFICIAL INTELLIGENCE &amp; EXPERT SYSTEM

(CSE, IT)

CS-504

Time : 3 Hours

Maximum Marks : 60

*The candidates shall limit their answers precisely within the answer-book (40 pages) issued to them and no supplementary/continuation sheet will be issued.*

**Note :** Attempt Five questions in all, selecting one question from each Sections A, B, C and D. Q. No. 9 is compulsory.

**Section A**

1. (a) Explain the A\* algorithm in detail. 5
- (b) Describe Minmax algorithm in game theory. 5

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2. Explain Breadth. Depth and Best first search with examples. 10

**Section B**

3. (a) What do you mean by knowledge representation ? Describe types of knowledge. 5
- (b) Write down Key differences between forward and backward reasoning. 5
4. (a) Explain Converting English to PROLOG facts and rules. <https://www.hptuonline.com> 5
- (b) Describe Conjunctive normal form and Disjunctive normal form. 5

**Section C**

5. (a) Explain Genetic operators. 5
- (b) Explain Back-propagation learning. 5
6. (a) Explain Hopfield network. 5
- (b) Describe problems with genetic algorithms. 5

**Section D**

7. (a) What is Expert system ? Explain characteristics of expert system. 5

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- (b) Explain some Knowledge representation languages. 5
8. (a) Differentiate top-down and bottom-up parsing. 5
- (b) Define the terms Knowledge engineering and inferencing. 5

**(Compulsory Question)**

9. Write short notes on the following : **2×10=20**

- (a) Intelligent agents
- (b) Hill climbing
- (c) AND/OR graph
- (d) Knowledge
- (e) Well-formed formula
- (f) PROLOG
- (g) Genetic algorithm
- (h) Natural Language
- (i) Backward chaining
- (j) Forward chaining.

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