

Roll No.

Total Pages : 3

DMCA/M-15

10329

ARTIFICIAL INTELLIGENCE

Paper-CS-DE-25

Time Allowed : 3 Hours]

[Maximum Marks : 80

Note : Attempt **five** questions in all, selecting at least **one** question from each Unit. Question No. 1 is compulsory. All questions carry equal marks.

Compulsory Question

1. (i) What is anonymous variable in PROLOG?
- (ii) What is the difference between Universal and Existential quantifiers?
- (iii) What do you understand by local and global maxima?
- (iv) What is a commutative production system?
- (v) What is the space complexity of breadth first search?
- (vi) What is modus ponens?
- (vii) What is horn clause?
- (viii) What is a satisfiable statement?

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UNIT-I

2. What is Artificial Intelligence? Discuss the following on applications of AI :
 - (i) Natural Language Processing
 - (ii) ICAI
 - (iii) Pattern recognition.
3. (a) Differentiate between associative network and conceptual graph using suitable example.
(b) Convert the following statement into Clausal form :
$$\forall x \forall y (Ez P(x,z) \& P(y,z)) \rightarrow \exists u Q(x,y,u).$$

UNIT-II

4. (a) What is depth first with iterative deepening search? Compare it with depth first and breadth first search.
(b) What is state space representation? Explain.
5. Differentiate between the following :
 - (a) Hill climbing and Best first search
 - (b) Admissibility and monotonicity.

UNIT-III

6. Define Production system. What are the different approaches to control of search in production system?

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7. What is Expert system? What are its different components? What are the different applications of Expert system? Discuss.

UNIT-IV

8. What is the difference between Crossover and Mutation operations in genetic algorithm? Explain using suitable examples.
9. What are the different sections in a PROLOG program? Explain their use using suitable example.

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