

Roll No.

Total Pages : 2

BT-5/D-22

45278

ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING

Paper-PC-CS-AIML-311A

Time : Three Hours]

[Maximum Marks : 75

Note : Attempt *five* questions in all, selecting atleast *one* question from each Unit. All questions carry equal marks.

UNIT-I

1. (a) What do you understand by production system? What are its different components? Explain.
(b) Write the algorithm for depth first search? When is it advisable to use depth first search over breadth first search? Discuss.
2. (a) Define Artificial Intelligence. What are the factors motivating the use of AI technology? Discuss.
(b) What is the difference between alpha and beta pruning? Illustrate.

UNIT-II

3. (a) What is Robinson's resolution principle? Discuss the set of support resolution strategy using suitable example.
(b) What is most general unifier (mgu)? Write the unification algorithm to find the mgu.

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4. (a) What is the difference between declarative frames and procedural frames? Explain using suitable examples.
(b) Write the mini-max algorithm and discuss the horizon effect.

UNIT-III

5. (a) What do you understand by clausal form? Convert the following statement into clausal form :
$$\forall x \forall y (\exists z P(x, z) \& P(y, z)) \rightarrow \exists u Q(x, y, u).$$

(b) What is fuzzy logic? Discuss the fuzzy operators.
6. (a) What is Proof by refutation? How is it used in FOPL? Discuss.
(b) What are the challenges in Natural Language Processing (NLP)? Discuss the pragmatic analysis.

UNIT-IV

7. (a) What is the difference between supervised and unsupervised learning? Discuss.
(b) Write a note on applications of machine learning in Business.
8. (a) Write a detailed note on K-means clustering.
(b) Discuss the working of Agglomerative Hierarchical Clustering (AHC) algorithm.