

Printed Pages – 4

Roll No.

C033511(033)

B. Tech. (Fifth Semester) Examination, Nov.-Dec. 2021

ACTE
(New Scheme)

(IT Branch)

**ARTIFICIAL INTELLIGENCE and
MACHINE LEARNING**

(BT3033)

Time Allowed : Three hours

Maximum Marks : 100

Minimum Pass Marks : 35

Note : Attempt all questions. Part (a) is compulsory and carries 4 marks. Attempt any two parts from (b), (c) and (d) of each carries 8 marks.

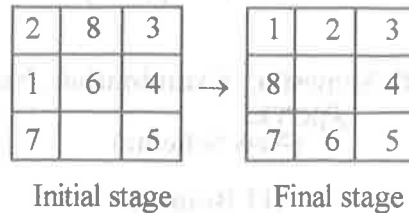
Unit-I

1. (a) What is AI? Discuss the importance of AI in the field of research.

4

[2]

- (b) How alpha-beta cutoff better improve the mini-max method? Explain with example. 8
- (c) Explain problem solving technique in AI. Give state space representation for 8 puzzle problem. 8



- (d) Comment on the performance issue of depth-first and breadth-first search technique. 8

Unit-II

2. (a) What is the difference between knowledge representation and knowledge acquisition? 4
- (b) What is conceptual dependency? Explain how information can be represented using conceptual dependency? 8
- (c) Write short notes on : 8
- (i) Well formed formula(WFF)
 - (ii) Frames

[3]

- (d) What do you mean by rule based system? Explain monotonic and non-monotonic reasoning with example. 8

Unit-III

3. (a) What do you mean by semantic analysis? Explain with example. 4
- (b) What is NLP? Why there is a need for NLP? Explain two major methods of NLP analysis. 8
- (c) What do you mean by Parsing? Explain top-down and bottom-up parsing with example. 8
- (d) What do you mean by linear and non-linear planning? Explain Goal Stack Planning with suitable example. 8

Unit-IV

4. (a) Differentiate between supervised and unsupervised training. Explain with suitable example. 4
- (b) Discuss learning model with neat diagram and also explain paradigm of machine learning. 8
- (c) Write short notes on : 8

[4]

- (i) Bayes estimator
 - (ii) Parametric classification
- (d) Prove that how maximum likelihood (Bayesian Learning) can be used in any learning algorithm that are used to minimize the squared error between actual output hypothesis and predicted output hypothesis. 8

Unit-V

5. (a) What is Dimensionality Reduction? Write various approaches of dimension reduction. 4
- (b) Define K-means clustering. How does the K-means Algorithm work? 8
- (c) Explain the concept of decision tree learning. Discuss the necessary measure required to select the attributes for building a decision tree using ID3 algorithm. 8
- (d) Write short notes on : 8
- (i) Principal component analysis
 - (ii) High correlation filter