Seat No. : _____

AI-105

April-2022

B.C.A., Sem.-VI

CC-309 : Introduction to AI & Machine Learning

Time : 2 Hours] **[Max. Marks : 50**

Instructions : (1) **All** Questions in Section-**I** carry equal marks.
(2) Attempt any **Two** questions in Section-**I**.
(3) Question-**5** in Section-**II** is **Compulsory.**

Section-I

1. (A) Explain various application areas of Artificial Intelligence. **10**

   (B) List out four basic kinds of agent programs and explain any two in detail. **10**

2. (A) Discuss the concept of DFS and depth-limited search in detail. **10**

   (B) Explain the working of A* search for minimizing the total estimated solution cost. **10**

3. (A) Discuss the concept of information extraction using Finite state automata and probabilistic model. **10**

   (B) Write a short note on Text classification. **10**

4. (A) Write a short note on types of machine learning. **10**

   (B) List and explain any ten application areas of machine learning in real world. **10**

Section-II

5. Choose the correct option : (Any **Five**) **10**

   (1) A _____ agent is one that acts so as to achieve the best outcome or, when there is uncertainty.

   (a) Rational (b) Cognitive

   (c) Both (a) and (b) (d) None of these

(2) _____ is an example of Acutator.

(a) Road (b) Steering

(c) Cameras (d) Safe

(3) All agents can improve their performance by _____

(a) Tracing (b) Tracking

(c) Learning (d) None of these

(4) _____ search algorithms can do quite well when given some guidance on where to look for solutions.

(a) Informed (b) Planning

(c) Both (a) and (b) (d) None of these

(5) _____ cost typically depends on the time complexity but can also include a term for memory usage.

(a) Optimal (b) Search

(c) Time (d) None of these

(6) Unsupervised learning is _____ driven.

(a) Task (b) Data

(c) Environment (d) Agent

(7) _____ tries to expand the node that is closest to the goal on the grounds that this is likely to lead to a solution quickly.

(a) Greedy BFS (b) Greedy DFS

(c) Both (a) and (b) (d) None of these

(8) Machine Learning is a subset of _____.

(a) AI (b) Deep Learning

(c) Neutral Networks (d) None of these

(9) HITS stands for

(a) Hyperlink Induced Topic Search (b) Hyperlink Included Task Search

(c) Hyper-loop Infused Topic Search (d) None of these

(10) _____ problem uses samples from the domain to assign a label or group to new unknown samples.

(a) Classification (b) Regression

(c) Optimization (d) All of these