

Seat No. : 212

**SJ-134**

September-2020

B.C.A., Sem.-VI

**CC-309 : Introduction to AI and ML**  
(New Course)

**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 applications of AI in detail.   | 10 |
|    | (B) Explain properties task environments.   | 10 |
| 2. | (A) Explain A* Search with example.   | 10 |
|    | (B) Explain breadth-first search and depth first search with example.                             | 10 |
| 3. | (A) What is an information retrieval ? Explain PageRank and HITS algorithms.                      | 10 |
|    | (B) Define information extraction. Explain finite-state automata(FSA) for information extraction. | 10 |
| 4. | (A) Explain semi-supervised learning and reinforcement learning in detail.                        | 10 |
|    | (B) Define machine learning. Give differences between supervised and unsupervised learning.       | 10 |

**Section – II**

- |    |   |    |
|----|---|----|
| 5. | Do as directed. (Any Five)  | 10 |
| 1. | Acting rationally is the _____ approach.                            |    |
|    | (a) Rational Agent  |    |
|    | (b) Turing test   |    |
|    | (c) Laws of thought   |    |
|    | (d) None of above   |    |
| 2. | An agent can be viewed as perceiving its environment through _____. |    |
|    | (a) Sensors   |    |
|    | (b) Sensors and Actuators   |    |
|    | (c) Perceiver   |    |
|    | (d) None of above   |    |



3. In Search algorithms, the structure of a node contains \_\_\_\_ components.
- (a) State and Parent
  - (b) Action
  - (c) Path-cost
  - (d) All of above
4. \_\_\_\_ search strategy is also called as blind search.
- (a) Simple reflex search
  - (b) Uninformed search
  - (c) Informed search
  - (d) None of these
5. \_\_\_\_ is/are example/s of toy problems.
- (a) Vacuum worlds
  - (b) 8-queens problem
  - (c) 8-puzzle
  - (d) All of above
6. The NLP system takes \_\_\_\_ as an input.
- (a) Speech
  - (b) Written text
  - (c) Both (a) and (b)
  - (d) None of above
7. The Support Vector Machine(SVM) is a/an \_\_\_\_ algorithm.
- (a) Supervised learning
  - (b) Reinforcement learning
  - (c) Unsupervised learning
  - (d) None of these
8. The \_\_\_\_ is/are type/s of reinforcement learning.
- (a) Direct learning
  - (b) Indirect learning
  - (c) Both (a) and (b)
  - (d) None of above
9. \_\_\_\_ is used to improve agent's performance.
- (a) Learning
  - (b) Omniscience
  - (c) Autonomy
  - (d) None of above
10. The N-gram models include/s \_\_\_\_.
- (a) unigram
  - (b) trigram
  - (c) bigram
  - (d) All of above