PAPER ID-311642

Subject Code: KCA301

Roll No: | | | | | | | | | | | | | |

# MCA
## (SEM III) THEORY EXAMINATION 2023-24
## ARTIFICIAL INTELLIGENCE

**TIME: 3HRS** **M.MARKS: 100**

**Note: 1.** Attempt all Sections. If require any missing data; then choose suitably.

### SECTION A

**1. Attempt *all* questions in brief.** **2 x 10 = 20**

| Q no. | Question |
|---|---|
| a. | What do you mean by AI? |
| b. | What are the different branches of artificial intelligence? |
| c. | Discuss searching process. |
| d. | Define conceptual dependency. |
| e. | Explain Bayesian networks. |
| f. | Describe forward chaining. |
| g. | What is Statistical learning method? |
| h. | Describe decision tree with diagram? |
| i. | What is Statistical PR? |
| j. | Explain K-means clustering. |

### SECTION B

**2. Attempt any *three* of the following:** **10x3=30**

| | |
|---|---|
| a. | Describe the applications of artificial intelligence. |
| b. | Explain Searching techniques used in games. |
| c. | Describe the use of Hidden Markov models in speech recognition. |
| d. | Explain learning with hidden data – EM algorithm. |
| e. | Define pattern recognition. What are the components of pattern recognition? |

### SECTION C

**3. Attempt any *one* part of the following:** **10x1=10**

| | |
|---|---|
| a. | Explain various approaches in NLP? |
| b. | Differentiate between human intelligence and machine intelligence. |

**4. Attempt any *one* part of the following:** **10x1=10**

| | |
|---|---|
| a. | Discuss the problem of water jug with heuristic search techniques. |
| b. | Explain Alpha-Beta pruning with example. |

**5. Attempt any *one* part of the following:** **10x1=10**

| | |
|---|---|
| a. | What do you mean by knowledge representation? Describe the techniques of knowledge representation. |
| b. | Explain the methods of planning & acting in the real world. |

**6. Attempt any *one* part of the following:** **10x1=10**

| | |
|---|---|
| a. | Write short note on the following:<br>i) Reinforcement learning<br>ii) Machine learning. |
| b. | Explain discrete model, Naive Bayes Model & Continuous Model. |

**7. Attempt any *one* part of the following:** **10x1=10**

| | |
|---|---|
| a. | Define Principle Component Analysis (PCA). Write steps involved in making principle components to do a classification of given data. |
| b. | Explain Nearest Neighbor (NN) rule in detail. |