CBCS SCHEME

USN

Seventh Semester B.E./B.Tech. Degree Examination, June/July 2025
Introduction to AI and ML

Time: 3 hrs. Max. Marks: 100

Note: Answer any FIVE full questions, choosing ONE full question from each module.

Module-1

1 a. Define AI and briefly explain four approaches to AI. **(10 Marks)**
b. List and discuss the foundations of artificial intelligence. **(10 Marks)**

OR

2 a. Explain Omniscience, learning and autonomy. **(10 Marks)**
b. With block diagram, explain simple reflex agents. **(10 Marks)**

Module-2

3 a. List and explain four-phase problem-solving process for an agent enjoying a touring vacation in Romania as shown in Fig.Q.3(a). **(10 Marks)**

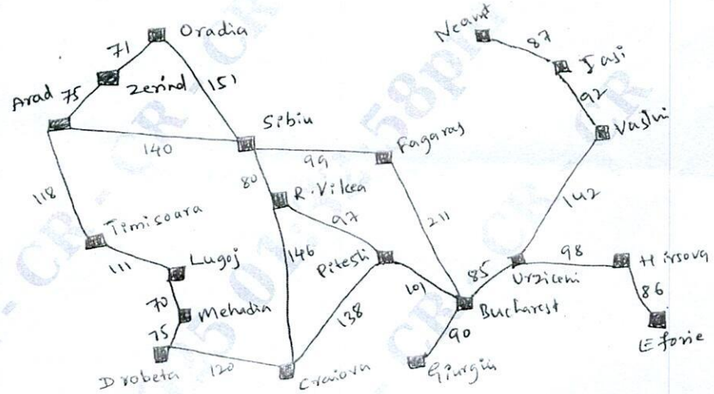

Fig.Q.3(a)

b. Explain the standard formulation and problem definition of the 8 puzzle as shown in Fig.Q.3(b). **(10 Marks)**

7	2	4
5		6
8	3	1

Start state

	1	2
3	4	5
6	7	8

Goal state

Fig.Q.3(b)

OR

4 a. With neat diagram, explain breadth-first search. **(10 Marks)**
b. Explain Bidirectional heuristic search. **(10 Marks)**

Module-3

5 a. List and briefly explain types of machine learning. **(10 Marks)**
b. Explain challenges of machine learning. **(10 Marks)**

OR

6 a. List and explain characteristics of Big Data. **(10 Marks)**
b. Briefly explain data analytics frame work. **(10 Marks)**

Module-4

7 a. With neat diagram, explain learning environment. **(10 Marks)**
b. List and explain four steps of design of learning system. **(10 Marks)**

OR

8 a. Explain weighted K-Nearest-Neighbor algorithm. **(10 Marks)**
b. Explain K-Nearest-Neighbor algorithm. **(10 Marks)**

Module-5

9 a. With neat diagram, explain artificial neural network structure. **(10 Marks)**
b. With neat diagram, explain perceptron model. **(10 Marks)**

OR

10 a. With neat diagram, explain architecture of RBFNN (Radial Basis Function Neural Network). **(10 Marks)**
b. Discuss self-organizing features map algorithm. **(10 Marks)**

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