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**BCACACN 603**

**Sixth Semester B.C.A. Degree Examination, June/July 2024  
(NEP 2020) (2023 – 2024 Batch Onwards)  
ARTIFICIAL INTELLIGENCE AND APPLICATIONS**

Time : 2 Hours

Max. Marks : 60

**Note : Answer any six questions from Part – A and any one full question in each Unit from Part – B.**

**PART – A**

**(6x2=12)**

1. a) Define AI.
- b) What are fully observable and partially observable environments ? Give an example.
- c) What are the four ways to measure an algorithm's performance ?
- d) Give the time and space complexity of Greedy Best First Search.
- e) What is entailment ?
- f) What are universal quantifiers ? Give example.
- g) What do you mean by Support Vector ?
- h) Give any four applications of image processing.



**PART – B**

**Unit – I**

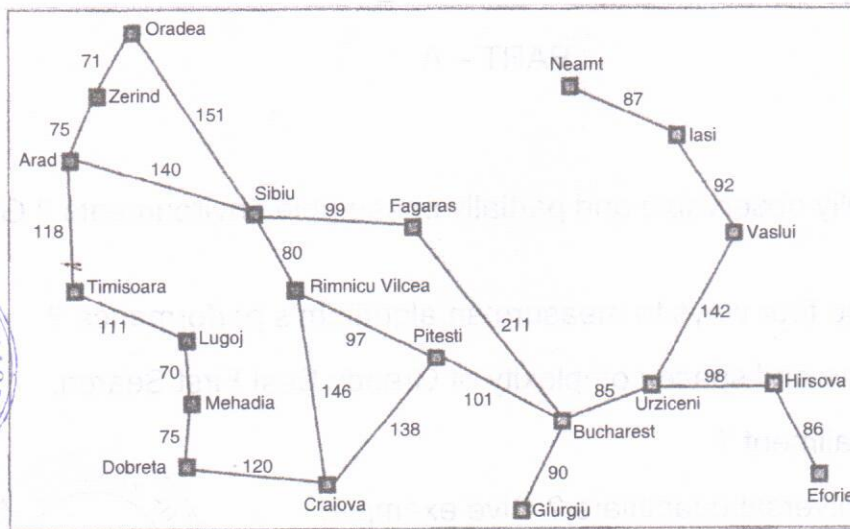
2. a) Write a note on "Acting Humanly, the Turing Test Approach".
- b) Briefly explain any four foundations of AI.
- c) Explain simple reflex agent with a neat diagram. **(4+4+4)**
3. a) Explain any six state of the art AI applications.
- b) How do you specify a task environment using PEAS description ? Explain with an example. **(6+6)**

P.T.O.



Unit – II

4. a) Explain the vacuum world problem.
- b) Explain Breadth First Search algorithm with example.
- c) Explain Bi-directional Search Algorithm with example. (4+4+4)
  
5. a) Explain 8 Puzzle problem.
- b) Explain A\* algorithm. Consider the map of Romania and the  $h_{SLD}$  value table given. Use A\* algorithm to find a path from Arad to Bucharest. (6+6)



Arad	366	Mehadia	241
Bucharest	0	Neamt	234
Craiova	160	Oradea	380
Dobreta	242	Pitesti	100
Eforie	161	Rimnicu Vilcea	193
Fagaras	176	Sibiu	253
Giurgiu	77	Timisoara	329
Hirsova	151	Urziceni	80
Iasi	226	Vaslui	199
Lugoj	244	Zerind	374



**Unit – III**

6. a) Explain the various logical connectives used in propositional logic.  
b) Explain assertions and queries in first order logic.  
c) Explain unification algorithm. **(4+4+4)**
7. a) Explain PEAS of Wumpus world problem.  
b) List and explain the steps of knowledge engineering process in FOL. **(6+6)**

**Unit – IV**

8. a) Briefly explain Linear Regression.  
b) List and explain the types of Artificial Neural Network.  
c) Explain the working of Speech Recognition Technology. **(4+4+4)**
9. a) List and explain the different components of Machine learning.  
b) Explain the phases of NLP. **(6+6)**

