CBCS SCHEME

USN | | | | | | | | | | |

18AI71

Seventh Semester B.E. Degree Examination, Jan./Feb. 2023
Advanced Artificial Intelligence

Time: 3 hrs. Max. Marks: 100

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

Module-1

1 a. Explain intelligent agent and environment in detail. **(10 Marks)**

b. What is an ideal rational agent? Discuss PEAS with suitable example for different agent types. **(10 Marks)**

OR

2 a. Explain the concept of rationality in detail. **(10 Marks)**

b. Describe the structure of agents. List and explain different types of agents. **(10 Marks)**

Module-2

3 a. Define:
i) Conditional probability
ii) Unconditional probability
iii) Inclusion-exclusion principle. **(06 Marks)**

b. State and explain Baye's rule in detail. **(10 Marks)**

c. Demonstrate Wumpus World problem in AI. **(04 Marks)**

OR

4 a. Discuss uncertainity problem with example. **(06 Marks)**

b. Elaborate the structure of an agent that uses decision theory to select action using appropriate pseudocode. **(10 Marks)**

c.

	Toothache		¬ toothache	
	Catch	¬ Catch	Catch	¬ Catch
Cavity	0.108	0.012	0.072	0.008
¬ Cavity	0.016	0.064	0.144	0.576

Calculate conditional probability for i) P(Cavity / toothache) ii) P(¬ Cavity/toothache) **(04 Marks)**

Module-3

5 a. With suitable example, explain Bayesian network. **(10 Marks)**

b. Discuss variable elimination algorithm in detail. **(10 Marks)**

OR

6 a. Write the pseudocode of rejection sampling algorithm and explain in detail. **(10 Marks)**

b. Describe how conditional independence relations are represented in Bayesian network. **(10 Marks)**

Module-4

7	a.	List and discuss early level operations in image processing.	**(10 Marks)**
	b.	Explain object recognition with structural information.	**(10 Marks)**

OR

8	a.	Elaborate on the different methods for converting 2D-image into a 3D-representation.	**(10 Marks)**
	b.	Draw the architecture of a face finding system and explain in detail.	**(10 Marks)**

Module-5

9	a.	List and explain the different challenges in NLP.	**(10 Marks)**
	b.	Discuss different types of statistical language modeling.	**(10 Marks)**

OR

10	a.	Discuss different applications of NLP.	**(10 Marks)**
	b.	Describe grammar based language model.	**(10 Marks)**

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