



# P.E.S. College of Engineering, Mandya - 571 401

(An Autonomous Institution affiliated to VTU, Belagavi)

**Fifth Semester, B.E. - Computer Science and Engineering**

**Semester End Examination; February / March - 2022**

**Artificial Intelligence**

Time: 3 hrs

Max. Marks: 100

### Course Outcomes

The Students will be able to:

CO1: Define Artificial intelligence and identify problems for AI. Characterize the search techniques to solve problems and recognize the scope of classical search techniques.

CO2: Define knowledge and its role in AI. Demonstrate the use of Logic in solving AI problems.

CO3: Demonstrate handling of uncertain knowledge and reasoning in probability theory.

CO4: Explain Learning methods in AI.

CO5: Explain Knowledge Learning, probabilistic models and reinforcement learning in AI.

**Note:** I) PART - A is compulsory. Two marks for each question.

II) PART - B: Answer any **Two** sub questions (from a, b, c) for Maximum of **18 marks** from each unit.

Q. No.	Questions	Marks	BLs	COs	POs
<b>I : PART - A</b>		<b>10</b>			
I a.	What is an agent?	2	L1	CO1	PO1,2
b.	What is inference?	2	L1	CO2	PO1,2
c.	What is decision tree?	2	L2	CO3	PO1,2
d.	What is proportional logic?	2	L2	CO4	PO1,1
e.	What is statistical learning?	2	L2	CO5	PO1,2
<b>II : PART - B</b>		<b>90</b>			
<b>UNIT - I</b>		<b>18</b>			
1 a.	Explain how agents should act?	9	L2	CO1	PO2
b.	Describe the problem solving searching with 8-puzzle and 8-queens problem.	9	L3	CO1	PO2
c.	Explain the implementation of BFS algorithm using general search algorithm.	9	L2	CO1	PO2
<b>UNIT - II</b>		<b>18</b>			
2 a.	Explain the WUMPUS world environment.	9	L2	CO2	PO2
b.	Give the syntax of first-order-logic in BNF (Backus-Naur Form).	9	L2	CO2	PO2
c.	What are Quantifiers? Convert the following statements into predicate logic:				
	i) "Jane is the mother of marry"	9	L3	CO2	PO2
	ii) "Tom is a cat and it has a tail"				
	iii) "Everyone gets a break once in a while"				
	iv) "There is somebody who knows everyone"				

**UNIT - III****18**

- |  |   |    |     |       |
|--|---|----|-----|-------|
| 3 a. Explain Baye's rule and its uses.                                       | 9 | L2 | CO3 | PO1,2 |
| b. Describe the semantics of belief networks with conditional probabilities. | 9 | L2 | CO3 | PO1,2 |
| c. Explain default reasoning and rule-based methods for uncertain reasoning. | 9 | L2 | CO3 | PO1,2 |

**UNIT - IV****18**

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|--|---|----|-----|-----|
| 4 a. Explain the decision tree learning algorithm. | 9 | L1 | CO4 | PO2 |
| b. Explain multilayer feed-forward networks.       | 9 | L1 | CO4 | PO2 |
| c. Describe the applications of neural networks.   | 9 | L1 | CO4 | PO2 |

**UNIT - V****18**

- |   |   |    |     |     |
|---|---|----|-----|-----|
| 5 a. Describe explanation based learning.               | 9 | L1 | CO5 | PO2 |
| b. Explain Inductive Logic Programming with an example. | 9 | L1 | CO5 | PO2 |
| c. Explain Statistical Learning.                        | 9 | L1 | CO5 | PO2 |

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