



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

(An Autonomous Institution affiliated to VTU, Belagavi)

First Semester, M. Tech - Computer Science and Engineering (MCSE)

Semester End Examination; April / July - 2021

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: Demonstrate Natural Language processing and its application in Natural language communication

Note: I) Answer any **FIVE** full questions, selecting **ONE** full question from each unit.

II) Any **THREE** units will have internal choice and remaining **TWO** unit questions are compulsory.

III) Each unit carries 20 marks. **IV)** Missing data, if any, may suitably be assumed.

Q. No.	UNIT - I	Marks	BLs	COs	POs
1a.	Describe Artificial Intelligence (AI). Explain different categories of AI into which it is organized.	10	L2	CO1	
b.	Illustrate how neuroscience contribute ideas and view point to AI?	10	L2	CO1	
OR					
1d.	Define the following terms: Agent, agent function, agent program, rationality, autonomy, reflex agent, model based agent, goal based agent, utility-based agent, learning agent.	10	L2	CO1	
e.	Illustrate how a problem can be defined using different components along with a solution?	10	L2	CO1	
UNIT - II					
2 a.	Illustrate different components of a knowledge based agents.	10	L2	CO2	
b.	With a diagram and example, explain how the logic and reasoning is represented?	10	L2	CO2	
OR					
2 d.	Explain the first-order logic model which reflects the ontological commitment to objects and relations with a diagram.	10	L3	CO2	
e.	Describe the steps in Knowledge engineering process.	10	L2	CO2	
UNIT - III					
3 a.	With a pseudocode, illustrate uncertainty and rational decisions.	10	L4	CO3	
b.	Explain how Bayesian network is used to represent the dependencies among variables with example?	10	L2	CO3	

UNIT - IV

- 4 a. What are the major factors used to improve any component of an agent? Explain. 10 L2 CO4
- b. Write the decision tree learning algorithm with example. 10 L2 CO3

UNIT - V

- 5 a. Illustrate current best hypothesis learning algorithm. 10 L2 CO5
- b. Explain policy search approach which is considered in reinforcement learning problems. 10 L2 CO5

OR

- 5 d. Explain the EM algorithm with example. 10 L2 CO5
- e. Differentiate Passive and Active reinforcement learning with suitable example. 10 L2 CO5

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