

**P.E.S. College of Engineering, Mandya - 571 401***(An Autonomous Institution affiliated to VTU, Belagavi)***Seventh Semester, B.E. - Computer Science and Engineering****Semester End Examination; February - 2022****Artificial Intelligence**

Time: 3 hrs

Max. Marks: 100

Course Outcomes*The Students will be able to:**CO1: Understand how Artificial Intelligence & Intelligence Systems enables capabilities that are beyond conventional technology.**CO2: Analyze how a heuristic state – space search algorithms are used to solve complex problem.**CO3: Analyze and design a rule-based expert system with tools.**CO4: Design fuzzy-logic based controllers and explores their unique characteristics.**CO5: Understanding of genetic algorithm and an outlook on the applications of genetic algorithm.***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
I : PART - A		10			
I a.	What is an artificial intelligence?	2	L2	CO1	PO2
b.	What is monotonic leaning?	2	L2	CO2	PO2
c.	What is expert system?	2	L2	CO3	PO2
d.	What is fuzzy logic?	2	L2	CO4	PO2
e.	What is genetic algorithm?	2	L2	CO5	PO2
II : PART - B		90			
UNIT - I		18			
1 a.	Explain the types of knowledge representation.	9	L2	CO1	PO2
b.	What is predicate calculus? Convert the following statements to predicate logic statements:				
	i) "Jane is the mother of Mary"	9	L3	CO1	PO1
	ii) "Tom is a cat and has a tail"				
	iii) "Energy gets a break once in a while"				
	iv) "There is somebody who knows everyone"				
c.	How do you categorize computer system with respect to artificial intelligence?	9	L2	CO1	PO1,2
UNIT - II		18			
2 a.	Explain the Heuristic search techniques using BFS.	9	L2	CO2	PO2
b.	Describe the strategies for state space search.	9	L2	CO2	PO2
c.	Classify and explain in brief the learning strategies.	9	L2	CO2	PO2

	UNIT - III	18		
3 a.	Explain the expert system organization with a diagram.	9	L2	CO3 PO2
b.	Explain the stages in the development of an expert system.	9	L2	CO3 PO1
c.	Describe the categories of expert system tools.	9	L2	CO3 PO2
	UNIT - IV	18		
4 a.	Explain the foundation of fuzzy systems.	9	CO4	PO2
b.	Describe the various types of fuzzy measures.	9	CO4	PO2
c.	Explain Defuzzification methods.	9	CO4	PO2
	UNIT - V	18		
5 a.	Draw and explain the flowchart of genetic algorithms.	9	CO5	PO2
b.	Explain the logic behind genetic algorithms.	9	CO5	PO2
c.	Explain ANT colony system with its applications.	9	CO5	PO2

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