Reg.No.:												

VIVEKANANDHA COLLEGE OF ENGINEERING FOR WOMEN
[AUTONOMOUS INSTITUTION AFFILIATED TO ANNA UNIVERSITY, CHENNAI]
Elayampalayam – 637 205, Tiruchengode, Namakkal Dt., Tamil Nadu.

Question Paper Code: 160001

B.E. / B.Tech. DEGREE END-SEMESTER EXAMINATIONS – NOV. / DEC. 2025
Third Semester
Artificial Intelligence and Data Science
U23AD302 – ARTIFICIAL INTELLIGENCE – I
(Regulation 2023)

Time: Three Hours | Maximum: 100 Marks

Answer ALL the questions

Knowledge Levels (KL)	K1 – Remembering	K3 – Applying	K5 - Evaluating
	K2 – Understanding	K4 – Analyzing	K6 - Creating

PART – A

(10 x 2 = 20 Marks)

Q.No.	Questions	Marks	KL	CO
1.	List any two features of intelligent systems.	2	K1	CO1
2.	Differentiate between an intelligent agent and an intelligent system.	2	K2	CO1
3.	Define Depth-First Search (DFS).	2	K1	CO2
4.	What is a heuristic function in AI?	2	K1	CO2
5.	State the evaluation function in game playing.	2	K2	CO3
6.	Mention the need of alpha-beta pruning.	2	K2	CO3
7.	Write the general form of a Horn clause and explain its importance in logic programming.	2	K2	CO4
8.	Give an outline concept of LISP and PROLOG.	2	K2	CO4
9.	Define an expert system.	2	K1	CO5
10.	List the few methods for handling uncertainty in AI.	2	K1	CO5

PART – B

(5 x 13 = 65 Marks)

Q.No.		Questions	Marks	KL	CO
11.	a)	Explain how machine learning contributes to Artificial Intelligence and how it differs from traditional programming.	13	K2	CO1

(OR)

	b)	Explain the need for combining different reasoning models into a Hybrid Model in Artificial Intelligence and illustrate its effectiveness with real-life problems.	13	K2	CO1
12.	a)	Analyze the problem-solving paradigm in AI using state space search. Illustrate your answer with an example of the A* search algorithm and explain its heuristic evaluation.	13	K3	CO2
		(OR)			
	b)	Explain the concept of state space representation with a suitable example (e.g., 8-puzzle or water jug problem). How does the choice of control strategy affect search performance?	13	K3	CO2
13.	a)	Describe the different types of games in AI, explain their characteristics with an examples.	13	K2	CO3
		(OR)			
	b)	Explain the alpha-beta pruning technique in AI. Discuss how it improves search efficiency in game trees, and illustrate its working with an example.	13	K2	CO3
14.	a)	Describe the Natural Deduction System in AI. Explain its rules, procedures, and how it is used to derive logical conclusions from premises, with examples.	13	K2	CO4
		(OR)			
	b)	Describe Extended Semantic Networks and how they improve on basic semantic networks.	13	K2	CO4
15.	a)	Discuss the phases involved in building an Expert System. Explain each phase in detail and its importance in developing an effective system.	13	K2	CO5
		(OR)			
	b)	Explain Bayesian Belief Networks and their use in representing uncertain knowledge.	13	K2	CO5

PART – C

(1 x 15 = 15 Marks)

Q.No.		Questions	Marks	KL	CO
16.	a)	Discuss about the brief history of Artificial Intelligence. Also clarify the concept of "human reasoning" and "meta physics" connected to the concept of Artificial Intelligence.	15	K2	CO1
		(OR)			
	b)	Discuss the building algorithm for State Space Search. Explain Recursion Based Search as example of pattern driven reasoning. Also discuss what are the challenges of Artificial Intelligence.	15	K2	CO2