QP CODE: D3BCA2405	(Pages: 2)	Reg. No : ....
		Name : ....

THIRD SEMESTER FYUGP EXAMINATION, NOVEMBER 2025

Discipline Specific Core (DSC) Courses - Major

BCA3CJ204 : FOUNDATIONS OF ARTIFICIAL INTELLIGENCE

(Credits: 4)

Time: 2 Hours	Maximum Marks: 70

Section A

Answer the following questions. Each carries 3 marks (Ceiling: 24 marks)

1.	What are the four approaches/dimensions of Artificial Intelligence?	BL1	CO1
2.	Differentiate between uninformed and informed search with examples.	BL2	CO3
3.	Describe the role of the inference engine in a knowledge-based agent.	BL2	CO4
4.	Who introduced the idea of the Turing Test to measure AI success?	BL1	CO5
5.	List any four criteria used to measure problem-solving performance.	BL1	CO3
6.	Why are utility-based agents considered more advanced than goal-based agents?	BL2	CO2
7.	Explain why ontologies are important for organizing knowledge	BL2	CO4
8.	Explain why today's voice assistants are considered weak AI.	BL2	CO5
9.	Explain why Strong AI is considered closer to human intelligence than Weak AI.	BL2	CO5
10.	Suppose a robot vacuum cleaner senses dust and changes its path. Identify the agent components involved.	BL3	CO5

Section B

Answer the following questions. Each carries 6 marks (Ceiling: 36 Marks)

11.	List and briefly explain six applications of Artificial Intelligence in various industries.	BL1	CO1
12.	Describe the importance of the agent function in decision-making. Support your answer with an example.	BL2	CO2

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13.	Define a *problem* in Artificial Intelligence. State any three essential components of a well-defined problem with examples.	BL1	CO6
14.	A bank introduces an AI system for loan approvals. Apply your understanding to identify two ethical risks and suggest suitable safeguards.	BL3	CO5
15.	Show how stuff like water can be represented logically as having intrinsic properties	BL3	CO4
16.	Illustrate how constraint propagation can help in solving job scheduling problems.	BL2	CO3
17.	With the help of an example, describe how heuristics guide the search process.	BL2	CO3
18.	Show that the following argument is valid using rules of inference: 1. $(p \lor q) \rightarrow r$ 2. $p \rightarrow s$ 3. $\neg r$ $\therefore \neg s$	BL3	CO4

Section C			
Answer any one question. Each carries 10 marks (1 x 10 = 10 Marks)			
19.	Write about the history of Artificial Intelligence and list the current state-of-the-art AI technologies with examples.	BL1	CO1
20.	"Predicate Logic provides the foundation for reasoning in Knowledge-Based Systems." — Justify this statement with examples.	BL2	CO4
	CO : Course Outcome		
	BL : Bloom's Taxonomy Levels (1 – Remember, 2 – Understand, 3 – Apply, 4 – Analyse, 5 – Evaluate, 6 – Create)		