Reg. No.

B.E. / B.TECH. DEGREE EXAMINATIONS, MAY 2023

Fifth Semester

CS18052 – Fundamentals of Artificial Intelligence

(Common to ME and EE)

(Regulation 2018)

TIME: 3 HOURS   **MAX. MARKS: 100**

COURSE OUTCOMES	STATEMENT	RBT LEVEL
CO 1	To understand the characteristics of Intelligent agents, define AI and learn about production systems.	2
CO 2	Learn to use appropriate search strategies for solving AI problems.	3
CO 3	Understand, represent knowledge, and use first-order logic in solving AI problems.	3
CO 4	To know about current applications of AI and compare some of them.	3
CO 5	To design an expert system from the concepts learned.	4

PART- A (10 x 2 = 20 Marks)

(Answer all Questions)

		CO	RBT LEVEL
1.	What is Rationality?	1	1
2.	Differentiate Sensors and Actuators.	1	3
3.	What is the path cost?	2	2
4.	Specify the space complexity of the Breadth-First search.	2	2
5.	Write short notes on unification.	3	1
6.	What is a conjunction? Specify the Truth Table.	3	2
7.	What is stemming and lemmatization? Give examples.	4	2
8.	Specify the chain rule of the N-gram model. Give an example.	4	3
9.	How do expert systems solve complex problems?	5	2
10.	Briefly write about the expert system shell structure.	5	1

PART- B (5 x 14 = 70 Marks)

		Marks	CO	RBT LEVEL
11. (a)	What is an Agent program? Explain the types of agent programs and specify the algorithm.	(14)	1	3

(OR)

(b)	**(i)**	Elaborate in detail about Task Environment and mention its types.	**(7)**	**1**	**3**
	(ii)	Illustrate Simple Reflex Agent and specify the condition action rule.	**(7)**	**1**	**3**

12. (a) Reveal the concept of an 8-puzzle. Give an example and find out the path cost. **(14)** **2** **3**

(OR)

(b) Implement the A* algorithm in detail with an example. **(14)** **2** **3**

13. (a) Devise and explain the four Knowledge representation Schemes with a neat diagram. Analyze the mapping of elements in different domains. **(14)** **3** **4**

(OR)

(b) Reveal Forward Chaining and how does it work? Elucidate the forward chaining algorithm with an example. Infer the rules which can be fired. **(14)** **3** **4**

14. (a) Demonstrate N-gram Model? Specify the chain rule. Elucidate any two types of N-gram models and their prediction probabilities. **(14)** **4** **5**

(OR)

(b) Appraise Robotic technology in various application domains. **(14)** **4** **5**

15. (a) Illustrate in detail the Expert System's architecture and the main application areas. **(14)** **5** **3**

(OR)

(b) Elucidate any two typical Expert systems in detail. **(14)** **5** **3**

PART- C (1 x 10 = 10 Marks)
(Q.No.16 is compulsory)

			Marks	CO	RBT LEVEL
16.		Illustrate the concept of Information Extraction and Information Retrieval with real-time examples.	**(10)**	**4**	**3**

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