MANIPAL INSTITUTE OF TECHNOLOGY
MANIPAL
(A constituent unit of MAHE, Manipal)

II SEMESTER M. TECH (INTERNET OF THINGS)
END SEMESTER EXAMINATIONS MAY 2024

ARTIFICIAL INTELLIGENCE (ICE 5403)

Time:3 Hours **05-05-2024** **MAX. MARKS: 50**

Instructions to Candidates:

- Answer **ALL** the questions.

Q.No.	Description	M	CO	PO'S	BL
1A	How an environment can be classified depending on the following terms i) Observation ii) Determinism iii) Episodicity	**3**	**1**	1,2,3,4,12	**2**
1B	Compare simple reflex agent and model based agent highlighting their significance in AI..	**4**	**1**	1,2,3,4,12	**3**
1C	Develop a state space representation of 8-puzzule problem.	**3**	**1**	1,2,3,4,12	**4**
2A	Illustrate depth limited search algorithm with a relevant example.	**3**	**2**	1,2,3,4,12	**3**
2B	Elucidate the functions of different components of an Intelligent agent with relevant block diagram	**4**	**1**	1,2,3,4,12	**3**
2C	What is minimax search for game playing? Illustrate the min max algorithm with relevant example.	**3**	**2**	1,2,3,4,12	**3**
3A	Consider the following axioms: 1. All hounds howl at night. 2. Anyone who has any cats will not have any mice. 3. Light sleepers do not have anything which howls at night. 4. John has either a cat or a hound. 5. (Conclusion) If John is a light sleeper, then John does not have any mice. Solve using Resolution.	**4**	**3**	1,2,3,4,12	**3**
3B	Illustrate inference in propositional logic with relevant examples.	**3**	**3**	1,2,3,4,12	**3**
3C	Demonstrate different steps which are involved for resolution in propositional logic.	**3**	**3**	1,2,3,4,12	**3**
4A	With few examples illustrate semantic and syntax in first order logic.	**3**	**3**	1,2,3,4,12	**2**
4B	Express the following as semantic net with interconnected nodes and labelled arcs:	**4**	**4**	1,2,3,4,12	**3**

	Company ABC is a software development company. Three departments within the company are: sales, administration, and programming. Joe is a manager of programming. Bill and Sue are programmer. Sue is married to Sam. Sam is editor of PHI. They have three children and they live on Elm street. Sue wears glasses and is 5.5 ft tall.				
4C	What are the two frameworks used to represent actions in planning? Explain STRIPS.	**3**	**4**	1,2,3,4,12	**2**
5A	What do you understand by universal elimination and existential elimination in first order logic?	**3**	**4**	1,2,3,4,12	**2**
5B	Differentiate supervised learning and unsupervised learning, with suitable illustration.	**4**	**5**	1,2,3,4,12	**3**
5C	Discuss the applications of neural networks in natural language processing.	**3**	**5**	1,2,3,4,12	**2**