GNITS-R- 18 –117DN

G. Narayanamma Institute of Technology & Science

(**Autonomous**) ***(for Women)***

Shaikpet, Hyderabad- 500 104

IV-B.Tech I-Semester *Regular/Supplementary Examinations, Nov-* 2024

ARTIFICIAL INTELLIGENCE

(*Common to CSE & CST*)

Max. Marks: 70 **Time: 03 Hours**

Note:

1. Question paper comprises of **Part A** and **Part B**.
2. **Part A** is compulsory which carries 10 marks. Answer all questions in Part A.
3. **Part B** (for 60 marks) consists of **five questions** with **"either" "or"** pattern. Each question carries 12 marks and may have a,b,c as sub questions. The student has to answer any one full question.

PART-A

*(Answer 05 questions. Each question carries **2 marks**)*

Q.No.	Question	Marks	CO	BTL
Q.1	a) Name the elements of an agent.	**[02]**	**CO1**	**[L1]**
	b) What is game tree?	**[02]**	**CO2**	**[L2]**
	c) What is Knowledge Representation?	**[02]**	**CO1**	**[L2]**
	d) Define Reinforcement Learning	**[02]**	**CO5**	**[L1]**
	e) Discuss the importance and goals of the Natural Language Processing	**[02]**	**CO6**	**[L4]**

END OF PART A

PART-B

*(Answer **05** full questions. Each question carries **12 marks**)*

Q.No.	Question	Marks	CO	BTL
Q.2(a)	What is simple problem solving agent? Explain it briefly.	**[06]**	**CO1**	**[L1]**
(b)	List and explain the applications of Artificial Intelligence.	**[06]**	**CO1**	**[L2]**
	OR			
Q.3(a)	Explain the Heuristic Search Techniques.	**[06]**	**CO1**	**[L1]**
(b)	Explain A* algorithm. What are the conditions for optimality?	**[06]**	**CO1**	**[L2]**

Q.4(a)	Demonstrate with an example the working of 'minimax' algorithm.	**[06]**	**CO2**	**[L3]**
(b)	What is Alpha-Beta pruning? Explain with the help of suitable example.	**[06]**	**CO2**	**[L2]**
	OR			
Q.5(a)	Explain the resolution algorithm used for reasoning under first order logic with an example.	**[06]**	**CO4**	**[L3]**
(b)	Differentiate between prepositional and predicate logic.	**[06]**	**CO4**	**[L4]**

Q.6(a)	Discuss about extended semantic networks for knowledge representation.	**[06]**	**CO3**	**[L3]**
(b)	Discuss about Knowledge representation using Frames with an example.	**[06]**	**CO3**	**[L3]**

OR

Q.7(a)	Describe different phases in building expert systems.	**[06]**	**CO3**	**[L2]**
(b)	Write in detail about applications of Expert systems.	**[06]**	**CO3**	**[L3]**

Q.8(a)	Write in detail about Support Vector Machines.	**[06]**	**CO5**	**[L2]**
(b)	Describe Bayesian networks in detail.	**[06]**	**CO4**	**[L2]**

OR

Q.9(a)	Explain Reinforcement learning. Give two applications	**[06]**	**CO5**	**[L3]**
(b)	Discuss the process of inductive learning using decision trees.	**[06]**	**CO5**	**[L2]**

Q.10(a)	Explain single and multi-layer feed forward networks with appropriate diagrams.	**[08]**	**CO5**	**[L3]**
(b)	Mention design issues of recurrent networks.	**[04]**	**CO5**	**[L3]**

OR

Q.11(a)	What are the phases of sentence analysis? Elaborate each phase in detail.	**[06]**	**CO6**	**[L3]**
(b)	What is semantic web? What are the challenges automated reasoning systems will have to deal with respect to semantic web?	**[06]**	**CO6**	**[L3]**

END OF PART B

END OF THE QUESTION PAPER