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**SAINTGITS COLLEGE OF ENGINEERING (AUTONOMOUS)**

(AFFILIATED TO APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY, THIRUVANANTHAPURAM)

**SECOND SEMESTER M.TECH DEGREE EXAMINATION(R,S), MAY 2024**

**M. Tech. Robotics and Automation**

**(2021 SCHEME)**

**Course Code : 21RA204-A**

**Course Name : Artificial Intelligence and Expert Systems in Automation**

**Max. Marks : 60**

**Duration:3 Hours**

**PART A**

*(Answer all questions. Each question carries 3 marks)*

1. List any three applications of AI.
2. Explain heuristic search.
3. Interpret informed search with adequate explanation.
4. Define zero-sum game.
5. Write down the different levels of computer vision.
6. What is depth information?
7. Give any three applications of machine learning in robotics.
8. Explain the machine learning techniques.

**PART B**

*(Answer one full question from each module, each question carries 6 marks)*

**MODULE I**

9. With suitable example illustrate the concept of predicate logic. 6

**OR**

10. Explain backward chaining with an example. 6

**MODULE II**

11. Describe MYCIN with an example. 6

**OR**

12. Explain the different blocks in an expert system. 6

**MODULE III**

13. Explain A\* algorithm with an example. 6

**OR**

14. Describe different types of hill climbing. 6

**MODULE IV**

15. Explain alpha-beta pruning. 6

**OR**

16. Describe AND-OR graph search with an example. 6

**MODULE V**

17. How CNN is used in computer vision? 6

**OR**

18. What are the different steps involved in implementing Object Recognition system? 6

**MODULE VI**

19. Explain the applications of software agents and robots. 6

**OR**

20. Explain back propagation algorithm used in multi layer neural network.

6

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