**14EC803 (A)**

**Hall Ticket Number:**

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| **IV/IV B.Tech (Regular/Supplementary) DEGREE EXAMINATION** | | | | |
| **July, 2021** | | **Electronics and Communication Engineering** | | |
| **Eight Semester** | **Artificial Intelligence and Machine Learning** | | | |
| **Time:** Three Hours | | | **Maximum:** 60 Marks | |
| *Answer ALL Questions from PART-A.* | | | | (12X1 = 12 Marks) |
| *Answer* ***ANY FOUR*** *questions from PART-B.* | | | | (4X12=48 Marks) |
| **Part - A** | | | | |

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| 1. | Answer all questions | | (12X1=12 Marks) | | |
|  | a) | Define artificial intelligence. | | |  |
|  | b) | Differentiate between general-purpose and special purpose methods of problem solving. | | |  |
|  | c) | What are deterministic or observable problems? | | |  |
|  | d) | Define agent. | | |  |
|  | e) | What is greedy search technique? | | |  |
|  | f) | List any two advantages of informed search techniques over uninformed search techniques. | | |  |
|  | g) | Differentiate between true positives and false positives. | | |  |
|  | h) | What is machine learning? | | |  |
|  | i) | What are self-organizing maps? | | |  |
|  | j) | What is adaptive learning? | | |  |
|  | k) | What is support vector machine? | | |  |
|  | l) | Differentiate between feed-forward and feed-back networks. | | |  |
| **Part - B** | | | | | |
| 2. | a) | List milestones in AI evolution. | | | 6M |
|  | b) | Give example of one ill structured problem with description and elaborate the method for solving that problem. | | | 6M |
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| 3. | a) | Elaborate on problem types and characteristics. | | | 6M |
|  | b) | What is a control strategy? Discuss the most common control strategies used while solving the problems. | | | 6M |
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| 4. | a) | Write and describe the steps of best first search technique. | | | 6M |
|  | b) | Explain how to solve and-or graph problems using AO\* algorithm. | | | 6M |
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| 5. | a) | Describe the concept of rationality and rational agents. | | | 6M |
|  | b) | Describe hill climbing search algorithm and its limitations. | | | 6M |
| 6. |  | Write notes on various learning paradigms, methods and models. | | 12M | |
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| 7. | a) | What is active learning? Explain it. | | | 6M |
|  | b) | Write brief notes on Support Vector Machines. | | | 6M |
| 8. | a) | Briefly explain the concepts of artificial neural network. | | | 6M |
|  | b) | With suitable example, describe back propagation method. | | | 6M |
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| 9. | a) | Elaborate on competitive learning | | | 6M |
|  | b) | Discuss network design issues. | | | 6M |

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