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 **PRESIDENCY UNIVERSITY**

  **Bengaluru**

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| **End - Term Examinations – JANUARY 2025** |
| **Date:** 11- 01- 2025 **Time:** 01:00 pm – 04:00 pm |

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| **School:** SOIS | **Program:** BCA (AIML) (DATA SCIENCE) |
| **Course Code :**CSA2020 | **Course Name :** Artificial Intelligence |
| **Semester**: III | **Max Marks**:100 | **Weightage**:50% |

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| **CO - Levels** | **CO1** | **CO2** | **CO3** | **CO4** | **CO5** |
| **Marks** | **22** | **10** | **20** | **24** | **24** |

**Instructions:**

1. *Read all questions carefully and answer accordingly.*
2. *Do not write anything on the question paper other than roll number.*

**Part A**

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| **Answer ALL the Questions. Each question carries 2marks. 10Q x 2M=20M** |
| **1** | What is AI and list out the 3 categories of Agent with its sensors. | **2 Marks** | **L1** | **CO1** |
| **2** | write any 4 mathematical notations/symbols of elements of logic. | **2 Marks** | **L1** | **CO2** |
| **3** | What are the different types of knowledge representation? | **2 Marks** | **L1** | **CO2** |
| **4** | What is the difference between deductive and inductive reasoning? | **2 Marks** | **L1** | **CO2** |
| **5** | What is the reasoning? | **2 Marks** | **L2** | **CO2** |
| **6** | What is Logic? | **2 Marks** | **L2** | **CO2** |
| **7** | How do neural networks learn from data? | **2 Marks** | **L2** | **CO4** |
| **8** | How do Bayesian networks represent uncertainty? | **2 Marks** | **L2** | **CO4** |
| **9** | What is the value of certainity under probablity? | **2 Marks** | **L1** | **CO5** |
| **10** | what is uncertainity? | **2 Marks** | **L1** | **CO5** |

**Part B**

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| **Answer the Questions each sub question will carries 10 marks. Total 80 Marks**. |
| **11.** | **a.** | Define Artificial Intelligence (AI) and briefly explain its significance in modern technology. And write a neat diagram of Utility-based agents for a home automation. | **20 Marks** | **L2** | **CO1** |
| **Or** |
| **12.** | **a.** | Write a neat diagram of model-based agents for a traffic monitoring?. Use first-order logic to represent the knowledge of a traffic monitoring rules. | **20 Marks** | **L2** | **CO1** |
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| **13.** | **a.** | Develop a system to solve Sudoku puzzles using a constraint satisfaction approach. Implement a search algorithm to solve the 8-puzzle problem. | **20 Marks** | **L2** | **CO3** |
| **Or** |
| **14.** | **a.** | Develop a system that can use analogical reasoning to solve new problems. How will the vehicle make simple decisions in simple scenarios. | **20 Marks** | **L2** | **CO3** |

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| **15.** | **a.** | Explain KNN algorithm with simple data of two feature. And solve a scenario, in a class there are 70% of the students who likes AI and 40 % of the students who likes AI and ML. Then what is the percentage of those who like ML, also like AI. | **20 Marks** | **L2** | **CO4** |
| **Or** |
| **16.** | **a.** | Explain the components of simple decision making? with an example. Explain bayesian belief system? Write a DAG and CPT for any scenario. | **20 Marks** | **L2** | **CO4** |

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| **17.** | **a.** | Explain Bayesian belief network with any examples. And explain belief and desires, utility?. | **20 Marks** | **L2** | **CO5** |
| **Or** |
| **18.** | **a.** | Explain the components of simple decision making? with an example. Explain the rules or axioms of Utility theory. | **20 Marks** | **L2** | **CO5** |

**\*\*\*\*\* BEST WISHES \*\*\*\*\***