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**UNIVERSITY**

(Karunya Institute of Technology & Sciences)

(Declared as Deemed-to-be University under Sec.3 of the UGC Act, 1956)

Reg.No. \_\_\_\_\_\_\_\_\_\_\_\_\_

**End Semester Examination – Nov/Dec - 2016**

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|  |  | **Semester :** | **2016-17 ODD** |
| **Code :** | **09CS213** | **Duration :** | **3 hrs** |
| **Sub. Name :** | **INTELLIGENT SYSTEMS** | **Max. marks :** | **100** |

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| **Q. No.** | **Questions** | **Marks** |
| **PART-A(10X1=10 MARKS)** | | |
| 1. | What is Artificial Intelligence? | (1) |
| 2. | \_\_\_\_\_\_\_\_\_\_ is a flat area of the search space in which a whole set of neighboring states has the same value. | (1) |
| 3. | The rate at which the system is cooled is called the \_\_\_\_\_\_\_\_\_\_\_\_\_\_ | (1) |
| 4. | Represent the following fact in predicate logic  All men are mortal | (1) |
| 5. | Define bidirectional search. | (1) |
| 6. | What is a frame? | (1) |
| 7. | Show a conceptual dependency representation of the following sentence:  “I gave the man a book.” | (1) |
| 8. | What is planning? | (1) |
| 9. | List the two types of analogy. | (1) |
| 10. | Give an example for expert system. | (1) |

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| **PART B(5 X 3= 15 MARKS)** | | |
| 11 | List the three important AI techniques. | (3) |
| 12 | State the properties possessed by a good system for the representation of knowledge in a particular domain. | (3) |
| 13 | Distinguish between procedural and declarative knowledge | (3) |
| 14 | Specify the components of planning system | (3) |
| 15 | Write short note on “Learning by chunking”. | (3) |

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| **PART C(5 X 15= 75 MARKS)** | | | |
| 16. | a. | You are given two jugs, a 4-gallon one and a 3-gallon one. Neither has any measuring mark on it. There is a pump that can be used to fill the jugs with water. How can you get exactly 2-gallon of water into the 4-gallon jug? Give the solution with the necessary production rules. | (10) |
| b. | Specify the things that are needed for solving a particular problem. | (5) |
| (OR) | | | |
| 17. | a. | What do you mean by simulated annealing? Write the algorithm and explain in detail | (8) |
| b. | Write the steepest ascent hill climbing algorithm and describe the behavior of the revised version of the steepest ascent hill climbing algorithm. | (7) |
| 18. | a. | Discuss the issues in knowledge representation | (7) |
| b. | Write the Unification algorithm and explain | (8) |
| (OR) | | | |
| 19. | a. | Consider the following set of facts:   * Marcus was a man. * Marcus was a Pompeian. * Marcus was born in 40 A.D. * All men are mortal * All Pompeiians died when the volcano erupted in 79 A.D. * No mortal lives longer than 150 years * It is now 2016 * Alive means not dead * If someone dies, then he is dead at all later times   Translate the above facts into predicate logic and prove that “Marcus is dead” using resolution algorithm | (15) |
| 20. | a. | State and explain Bayes theorem | (8) |
| b. | Describe Dempster-Shafer theory. Discuss with example | (7) |
| (OR) | | | |
| 21. | a. | Illustrate the ABC murder story and explain how Non-monotonic reasoning can be applied to this problem. | (15) |
| 22. | a. | What are the components of planning system? Explain in detail with the “Blocks World” problem. | (15) |
| (OR) | | | |
| 23. | a. | List the various primitiveactions and the categories of conceptual dependency. Describe each action with the suitable example. | (10) |
| b. | Explain how tenses can be represented in conceptual dependency representation. | (5) |
| 24. | a. | What is learning? Discuss any 4 types of learning in detail with suitable examples. | (15) |
| (OR) | | | |
| 25. | a. | Give examples for expert systems and explain how knowledge acquisition and representation is done in expert system. | (15) |

ALL THE BEST