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PRESIDENCY UNIVERSITY BENGALURU

SCHOOL OF INFORMATION SCIENCE

MAKE UP EXAMINATION - JULY 2024

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| **Semester : V SEM** | **Date : 05.07.2024** |
| **Course Code : CSE228** | **Time : 09.30AM to 12.30 PM** |
| **Course Name : Principles of Artificial Intelligence** | **Max Marks : 100** |
| **Program : B.Tech** | **Weightage : 50%** |

**Instructions:**

1. *Read all questions carefully and answer accordingly.*
2. *Question paper consists of 3 parts.*
3. *Scientific and non-programmable calculator are permitted.*
4. *Do not write any information on the question paper other than Roll Number.*

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| **PART A** | | | |
| **ANSWER ANY 5 QUESTIONS 5Q X 2M=10M** | | | |
| 1 | Define the following Terms I) Artificial Intelligence ii) Agent | (CO1) | [Knowledge] |
|  | | | |
| 2 | List out the advantages of Artificial Intelligence | (CO1) | [Knowledge] |
|  | | | |
| 3 | Consider the Following Sentences Translate into predicate logic.  a) Chicken is Food.  b) Ahmed eats everything Mohammed eats. | (CO2) | [Knowledge] |
|  | | | |
| 4 | Tabulate Uninformed and informed search strategies. | (CO3) | [Knowledge] |
|  | | | |
| 5 | Outline any three Constraint satisfaction problems. | (CO3) | [Knowledge] |
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| 6 | List any three applications of Probabilistic Reasoning | (CO4) | [Knowledge] |
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| 7 | List the applications of Hidden Markov model. | (CO4) | [Knowledge] |
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| **PART B** | | | |
| **ANSWER ANY 5 QUESTIONS 5Q X 10M=50M** | | | |
| 8 | Describe knowledge base architecture in detail with proper diagram. | (CO1) | [Comprehension] |
|  | | | |
| 9 | Converting below sentences to propositional logic and applying inference rules:  If I work whole night on this problem, then I can solve it.  If I solve the problem, then I will understand the topic.  Therefore, I will work whole night on this problem, then I will understand the topic. | (CO2) | [Comprehension] |
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| 10 | Consider the following Knowledge Base  1.) Exam Pressure is high or Attendance is low.  2.) If attendance is low then he will fail.  3.) If exam pressure is more then he will sleep.  4.) He did not sleep.  5.) He will fail.  Use propositional logic and covert these statements into CNF form. | (CO2) | [Comprehension] |
|  | | | |
| 11 | Differentiate between Inductive, abductive and Deductive reasoning with example of each. | (CO3) | [Comprehension] |
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| 12 | Explain the concept constraint satisfaction procedure to solve the cryptarithmetic problem. | (CO3) | [Comprehension] |
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| 13 | Explain how Bayesian networks statistics provides reasoning under various kinds of uncertainty. | (CO4) | [Comprehension] |
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| 14 | Explain Supervised Learning, Unsupervised Learning and Reinforcement Learning with application areas. Write down one algorithm of each Learning method | (CO4) | [Comprehension] |
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| **PART C** | | | |
| **ANSWER ANY 2 QUESTIONS 2Q X 20M=40M** | | | |
| 14 | Draw a Semantic Network in the Following Sentence:    *“Every human, animal and bird is living thing who breathe and eat. All birds can fly. All man and woman are humans who have two legs. Cat is an animal and has a fur. All animals have skin and can move. Giraffe is an animal who is tall and has long legs. Parrot is a bird and is green in color”.* | (CO1) | [Applying] |
|  | | | |
| 15 | A) Describe need for alpha beta pruning, mention conditions for pruning.  B) Perform Alpha Beta pruning, Draw final graph, update node values, and indicate pruned branches with alpha beta values. | (CO3) | [Applying] |
|  | | | |
| 16 | Illustrate the A\* Search Algorithm in the below example:     |  |  | | --- | --- | | HEURISTIC VALUE | | | S | 7 | | A | 6 | | B | 2 | | C | 1 | | D | 0 | | (CO2) | [Applying] |
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