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Paper Code : OE-EC804A Artificial Intelligence

UPID : 008300

Time Allotted : 3 Hours   *Full Marks :70*

The Figures in the margin indicate full marks.

Candidate are required to give their answers in their own words as far as practicable

Group-A (Very Short Answer Type Question)

1. Answer any ten of the following :   [1 x 10 = 10]
   (I) Which function will select the lowest expansion node at first for evaluation?
   (II) What are the syntactic elements of First Order Logic?
   (III) What is Reasoning?
   (IV) What are the components of a problem?
   (V) What is the meaning of semantics?
   (VI) what is Artificial Intelligence ?
   (VII) What are the tasks of Artificial Intelligence?
   (VIII) Database Management System is not an application of AI: True/False
   (IX) A* Search are informed search methods. True/False
   (X) Which search method will expand the node that is closest to the goal?
   (XI) What is Perceiving in AI ?
   (XII) The recognition system in AI is of how many types?

Group-B (Short Answer Type Question)

Answer any three of the following :   [5 x 3 = 15]

2. List down all the characteristics of intelligent agent.   [5]
3. How will you measure the problem-solving performance?   [5]
4. Define First order Logic? Mention its uses.   [5]
5. What is BFS? What is the application of BFS?   [5]
6. What are semantic nets? Describe its feature.   [5]

Group-C (Long Answer Type Question)

Answer any three of the following :   [15 x 3 = 45]

7. a. Can there be more than one agent program that implements a given agent function?   [
   Give an example, or show why one is not possible.   3+3+3+3+3
   b. Are there agent functions that cannot be implemented by any agent program?   ]
   c. Given a fixed machine architecture, does each agent program implement exactly one
   agent function?
   d. Given an architecture with n bits of storage, how many different possible agent programs
   are there?
   e. Suppose we keep the agent program fixed but speed up the machine by a factor of two.
   Does that change the agent function?

8. Explain properties of environment with examples :   [
   a) Discrete vs Continuous   3+3+3+3+3
   b) Deterministic vs Stochastic   ]
   c) Single-agent vs Multi-agent
   d) Known vs Unknown
   e) Accessible vs Inaccessible

9. a) Define A.I   [3+3+3+6
   b) What is meant by robotic agent?   ]
   c) Define rational agent?
   d) Give the general model of learning agent?

10. Explain in detail, the structure of following intelligent agents. Mention why they are called intelligent?   [5+5+5]

A. Simple Reflex Agents
B. Model Based Reflex Agents
C. Goal Based Agents

11. a. How can mini-max also be extended for game of chance?   [5+5+5]
    b. What is environment program ? List the properties of environments.
    c. How agent should act?

*** END OF PAPER ***