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Total No. of Printed Pages: 1

Total No. of Questions: [09]

B. Tech. (CSE) (Semester – 7th)
ARTIFICIAL INTELLIGENCE
Subject Code: BCSED1724
Paper ID: [18111146]

Time: 03 Hours

Maximum Marks: 60

Instruction for candidates:

1. Section A is compulsory. It consists of 10 parts of two marks each.
2. Section B consist of 5 questions of 5 marks each. The student has to attempt any 4 questions out of it.
3. Section C consist of 3 questions of 10 marks each. The student has to attempt any 2 questions.

Section – A

(2 marks each)

Q1. Attempt the following:

- a. What is AI capable of today?
- b. Why heuristic search techniques are considered to be powerful than the traditional search techniques?
- c. What do you mean by knowledge representation?
- d. What do you understand by the term Fuzzy Logic?
- e. Define parsing.
- f. Differentiate between propositional and predicate logic.
- g. Define conditional probability.
- h. List the qualities of an artificially intelligent agent.
- i. What does generalization and overfitting mean?
- j. What are the applications of Bayesian Network?

Section – B

(5 marks each)

- Q2. Explain Minimax algorithm as an optimal strategy for game theory and how its performance can be improved.
- Q3. Explain the syntax and semantics of Bayesian Network with a suitable example.
- Q4. Describe resolution method as an inference mechanism for First Order Logic.
- Q5. Discuss the applications of neural networks with real-life examples.
- Q6. Consider the following problem statements and conclusion:
 - i. Anyone whom Mary loves is a football star.
 - ii. Any student who does not pass does not play.
 - iii. John is a student.
 - iv. Any student who does not study does not pass.
 - v. Anyone who does not play is not a football star.
 - vi. If John does not study, then Mary does not love John. (Conclusion)Prove this conclusion using resolution technique.

Section – C

(10 marks each)

- Q7. Illustrate in detail the various Heuristic Search strategies available for providing solutions to problem solving agents. Give necessary examples.
- Q8. How LISP and PROLOG can help you in regard of developing artificial intelligence? Explain in detail with features.
- Q9. What do you understand by natural language processing? Explain in detail the various steps of natural language processing.