Roll No. ☐☐☐☐☐☐☐☐☐☐☐   Total No. of Pages : 03

Total No. of Questions : 18

B.Tech. (CSE) (2012 to 2017)   (Sem.–7)

ARTIFICIAL INTELLIGENCE

Subject Code : BTCS-701

M.Code : 71893

Time : 3 Hrs.   Max. Marks : 60

INSTRUCTION TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt ANY FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt ANY TWO questions.

SECTION-A

Write briefly :

1) What is state space search for water jug problem?

2) What is Conflict Resolution Strategies?

3) What is decision tree?

4) What is a Rule based learning?

5) What is a monotonic Production System?

6) How recursion is implemented in lisp?

7) What is declarative knowledge?

8) What is an agent?

9) What is an expert system?

10) What is a frame problem?

SECTION-B

11. Explain the AO* algorithm. Under what situations it can be used?

12. Express the following as semantics net with interconnected nodes and labeled arcs :

    "Company ABC is a software development company. Three departments within the company are Sales, Administration and Programming. Joe is a manager of programming. Bill and sue are programmer. Sue is married to Sam. Sam is editor of PHI. They have three children, and they live on Elm Street. Sue wears glasses and is 5.5 feet tall".

13. What is meant by a "Knowledge-Based System"? Describe the basic components of a knowledge- based system. Also mention the various levels of knowledge representation.

14. Differentiate between Data, Belief, Hypothesis & Knowledge. What is tautology? Give an example.

15. Derive a parse tree for the sentence "Bill Loves the Frog" where the following rules are used :

    S → NP VP

    NP → N

    NP → DET N

    VP → V NP

    DET → the

    V → loves

    N → bill | frog

SECTION-C

16. What do you understand by unsupervised learning? What are the major characteristics?

17. What is minimax search for game playing? Explain the Min Max algorithm.

18. Consider the following sentences :

    John likes all kind of food

    Apples are food

    Chicken is food

    Anything anyone eats and is not killed by is a food

    Bill eats peanuts and is still alive

    Sue eats everything Bill eats

    a) Translate these sentences into formulas in predicate logic.

    b) Prove that john like peanuts using backward chaining.

    c) Convert the formula into clause form.

    d) Prove that John likes peanuts using resolution.

NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.