Code No. : 5291/M

FACULTY OF INFORMATICS
BE 3/4 (IT) II Semester (Main) Examination, May/June 2012
ARTIFICIAL INTELLIGENCE

Time : 3 Hours] [Max. Marks :75

***Note**: Answer **all** questions of Part **A**. Answer **five** questions from Part **B**.*

PART – A **(25 Marks)**

1. Define state and explain how the state of a problem change. **3**
2. Describe search efficiency in terms of branching factor and total number of nodes. **3**
3. What is a well formed formula in propositional calculus ? Can it be converted to an equivalent conjunction of clauses ? **2**
4. Explain Universal Instantiation and Existential generation in predicate calculus. **2**
5. Why are Horn Clauses used in logical reasoning systems ? **2**
6. Give Bayes Rule, explain its use with an example. **3**
7. How do you plan to generate a sequence of actions in situation calculus ? **3**
8. What is a Decision Tree ? Define information gain. **2**
9. Define Speech Recognition task in terms of words and signals. **2**
10. What is a Feature Vector ? Explain with an example. **3**

PART – B **(50 Marks)**

11. a) Illustrate a possible result of a Heuristic Search Procedure by defining a suitable Heuristic function for an eight-puzzle problem.
    b) State Turing Test. Explain its relevance in AI.
12. Write minimax procedure and illustrate the method with the game of Tic-Tac-Toe.

13. a) Explain how Predicate calculus can be used as a language for representing knowledge.

    b) Illustrate the use of resolution to answer questions using knowledge about a domain represented by wffs of Predicate-calculus.

14. Write generate-Decisions-Tree algorithm and illustrate using a specific example.

15. Explain how Rule-Based expert system work.

16. Describe feedforward multilayer neural networks giving details of computations involved.

17. Describe Speech Recognition in terms of Language Model and Acoustic Model.
