

**FACULTY OF INFORMATICS****B.E. 3/4 (IT) II – Semester (Main) Examination, May / June 2015****Subject : Artificial Intelligence****Time : 3 hours****Max. Marks : 75****Note: Answer all questions from Part-A. Answer any FIVE questions from Part-B.****PART – A (25 Marks)**

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|----|--|---|
| 1  | What is Artificial Intelligence? What are the possible goals to pursue in Artificial Intelligence? | 3 |
| 2  | Define state and explain how the state of problem changes.   | 2 |
| 3  | Write the syntax rule for propositional logic.   | 2 |
| 4  | What is an Expert system? What are the main components of an expert system?                        | 3 |
| 5  | State the Bayes rule. Explain its uses.  | 3 |
| 6  | What is Decision tree? Define information gain.  | 3 |
| 7  | Differentiate between supervised and unsupervised learning.  | 2 |
| 8  | Define perception.   | 2 |
| 9  | Explain Speech Act.  | 2 |
| 10 | Explain phrase structure grammar in brief.   | 3 |

**PART – B (50 Marks)**

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|----|--|----|
| 11 | Describe the behavior of A* search in terms of optimality, completeness and complexity.      | 10 |
| 12 | a) Write the steps of resolution refutation for proving an arbitrary WFF from a set of wffs. | 5  |
|    | b) What are frames? Explain.   | 5  |
| 13 | a) Explain Dempster Shafer theory.   | 5  |
|    | b) Draw and explain the architecture of expert systems.                                      | 5  |
| 14 | a) Differentiate between single layer and multi layer feed forward networks.                 | 5  |
|    | b) Explain back propagation algorithm in detail.   | 5  |
| 15 | Write the Decision tree learning algorithm. Explain its working using an example.            | 10 |
| 16 | a) Explain semantic analysis in natural language processing.                                 | 5  |
|    | b) Explain phrase structured grammar.  | 5  |
| 17 | Write short notes on any Two of the following :  | 10 |
|    | a) Support Vector Machines   |    |
|    | b) Common Sense Knowledge  |    |
|    | c) Bayesian Belief Networks  |    |

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