Reg.No. \_\_\_\_\_\_\_\_\_\_\_\_

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**End Semester Examination – Nov/Dec – 2018**

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| **Code :** | **14EC2061** | **Duration :** | **3hrs** |
| **Sub. Name :** | **SOFT COMPUTING** | **Max. marks :** | **100** |

**ANSWER ALL QUESTIONS (5 x 20 = 100 Marks)**

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| **Q. No.** | **Sub Div.** | **Questions** | **Course**  **Outcome** | **Marks** |
| 1. | a. | Distinguish between supervised and unsupervised training algorithms. | CO1 | 5 |
| b. | Illustrate the electrical and chemical operations of human brain with neat diagrams | CO1 | 15 |
| (OR) | | | | |
| 2. | a. | “Hopfield neural networks are more stable than other neural networks”. Justify this statement with necessary equations. | CO1 | 15 |
| b. | Demonstrate the solutions for the “X-OR” problem in perceptron neural network? | CO1 | 5 |
|  |  |  |  |  |
| 3. | a. | Let  and  Estimate: (i) , (ii) , (iii) , (iv) , (v) | CO1 | 10 |
|  | b. | Explain the structure and the training algorithm used for Bidirectional Associative Memories with neat diagrams. | CO1 | 10 |
| (OR) | | | | |
| 4. |  | Describe the architecture and training algorithm of Back Propagation Neural network with necessary diagrams. | CO1 | 20 |
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| 5. | a. | Show how CART algorithm is used for solving the classification and regression applications, with mathematical equations to validate. | CO2 | 15 |
| b. | Develop a framework for fuzzy logic controller for industrial applications. | CO1 | 5 |
| (OR) | | | | |
| 6. | a. | With neat architecture, analyze the working principle of ANFIS. Include mathematical equations wherever necessary. | CO1 | 15 |
| b. | Outline the training algorithm of ANFIS with necessary mathematical equations. | CO1 | 5 |
|  |  |  |  |  |
| 7. | a. | Distinguish between Fuzzy C means and k-means clustering algorithms. | CO1 | 10 |
| b. | Distinguish between subtractive clustering and mountain clustering methods used for initialization process. | CO1 | 10 |
| (OR) | | | | |
| 8. | a. | Explain the simulated annealing method of optimization for practical applications. | CO1 | 10 |
| b. | Compare and contrast random search and downhill simplex search. | CO1 | 10 |
|  | |  |  |  |
|  | | **Compulsory**: |  |  |
| 9. | a. | Summarize the various reproduction operators of Genetic Algorithm with neat diagrams. | CO1 | 10 |
| b. | Classify the various optimization techniques used in Genetic Algorithm. | CO1 | 10 |