

**B. E. POWER ENGG. 3RD YEAR 2ND SEMESTER EXAMINATION 2024**

**Optimization Techniques**

**TIME: THREE HOURS**

**FULL MARKS:100**

- |   |         |
|---|---------|
| 1.a) State the optimization problem.                                | 4[CO2]  |
| b) Explain mathematical programming and optimality.                 | 16[CO1] |
| 2.a) State and explain linear and quadratic programming techniques. | 15[CO2] |
| b) State the advantages of dynamic programming technique.           | 5[CO2]  |
| 3. a) What are the typical architectures used for neural network.   | 5[CO3]  |
| b) Describe briefly multi-layer feed-forward neural networks.       | 15[CO3] |

Or

- |   |         |
|---|---------|
| 3. a) What is metaheuristic algorithm?                              | 3[CO3]  |
| b) Describe different steps of differential evolution algorithm.    | 12[CO3] |
| c) Describe the basis of gravitational search algorithm.            | 5[CO3]  |
| 4. What is swarm intelligence algorithm?                            | 4[CO4]  |
| Describe briefly particle swarm optimization method with flowchart. | 16[CO4] |

Or

- |  |         |
|--|---------|
| 4) Give a note on cuckoo search algorithm.                     | 20[CO4] |
| 5. a) What is Pareto-optimal solution?                         | 5[CO5]  |
| b) Describe briefly nondominated sorting genetic algorithm-II. | 15[CO5] |