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| Question Paper Code | 11603 |
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# M.E. - DEGREE EXAMINATIONS, NOV/DEC 2022 <br> Third Semester <br> M.E. - Computer Science and Engineering 20PCSEL309-BIO-INSPIRED COMPUTING 

(Regulations 2020)
Duration: 3 Hours
Max. Marks: 100
PART - A ( $\mathbf{1 0} \times 2=20$ Marks $)$
Answer ALL Questions

| 1. Classify optimization in terms of number of constraints. | Marks, <br> K-Level, CO |
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| 2. State the four rules of Flower Algorithm. | $2, \mathrm{~K} 2, \mathrm{CO}$ |

## PART - B ( $5 \times 13=65$ Marks $)$ <br> Answer ALL Questions

11. a) Examine how optimal convergence is done using Newton-Raphson's 13,K3,COI method.

OR
b) Explain in detail about Gradient descent algorithms.

13,K2,CO1
12. a) Explain the step sizes, Stopping Criteria and Search efficiency in $13, \mathrm{~K} 2, \mathrm{CO} 2$ detail.

OR
b) Illustrate in detail about Simulated Annealing Algorithm.

13,K2,CO2
13. a) Discuss genetic algorithm in detail with an example.

13,K2,CO3
OR
b) Summarize about Differential Evolution and its algorithm.

13,K2,CO3
K1 - Remember; K2 - Understand; K3 - Apply; K4 - Analyze; K5 - Evaluate; K6 - Create 11603
14. a) Explain PSO algorithm in detail.

OR
b) Discuss in detail about Ant Colony Optimization towards feature $13, \mathrm{~K} 2, \mathrm{CO} 4$ selection.
15. a) Outline the various Bio-inspired computation and its applications in 13,K2,CO5 image processing.

## OR

b) Explain the architecture of Probabilistic Neural Network.

## PART - C ( $\mathbf{1} \times \mathbf{1 5}=\mathbf{1 5}$ Marks $)$

16. a) Choose an appropriate algorithm and discuss the algorithm for Image $15, K 6$, CO6 Contrast Enhancement.

## OR

b) Discuss Ground Glass Opacity Nodules Detection and Segmentation 15,K6,CO6 using Snake Model.

