B.E. (Computer Technology) Seventh Semester (C.B.S.)

Elective-I : Computational Intelligence

P. Pages : 2 **NIR/KW/18/3563**

Time : Three Hours * 1 9 2 5 * Max. Marks : 80

Notes : 1. All questions carry marks as indicated.
2. Solve Question 1 OR Questions No. 2.
3. Solve Question 3 OR Questions No. 4.
4. Solve Question 5 OR Questions No. 6.
5. Solve Question 7 OR Questions No. 8.
6. Solve Question 9 OR Questions No. 10.
7. Solve Question 11 OR Questions No. 12.

1. a) Explain various classes of evolutionary algorithm. **7**

b) Explain use of artificial Neuron in computational intelligence. **7**

OR

2. a) Describe computational intelligence using block diagram. **7**

b) Explain the model of natural immune system. **7**

3. a) Explain fuzzification. Why it is required to defuzzify the fuzzy value. **7**

b) Explain the architecture of artificial neural network. **6**

OR

4. a) What is expert system? What are its types? Describe any one of them. **7**

b) Suggest suitable fuzzy system for water pump for overhead water tank. Assume suitable inputs. **6**

5. a) Compare supervised and unsupervised learning algorithm. **7**

b) Give neural model for implementation of AND end NOR gate. **6**

OR

6. a) Write short note on multilayered feedforward neural network. **7**

b) Give characteristic of XOR function in view of classifier. Give neural network for XOR function. **6**

7. a) Differentiate between genetic and phenotypic evolution. **7**

b) Write short note on chromosomes. **6**

OR

8.	a)	Which are the basic operators used by a simple genetic algorithm. Explain any one of them.	**7**
	b)	What are the components of evolutionary algorithm.	**6**
9.	a)	Discuss similarity and differences between PSO and EAs.	**7**
	b)	Give use of PSO for clustering data.	**7**

OR

10.	a)	Which are velocity components of guest PSO?	**7**
	b)	What are basic PSO parameters.	**7**
11.	a)	What are conveyance criteria used for stopping condition.	**7**
	b)	Which optimization problem have influence over fitness function.	**6**

OR

12.	a)	Explain closure properties of min-operator.	**7**
	b)	Explain steps in EA.	**6**

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