B. E. Eighth Semester (Computer Science & Engineering) (C.B.S.)
Elective - III : Soft Computing Techniques

P. Pages : 2

Time : Three Hours

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0740

NKT/KS/17/7611

Max. Marks : 80

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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.
8. Assume suitable data whenever necessary.
9. Illustrate your answers whenever necessary with the help of neat sketches.

1. a) Differentiate between soft computing and conventional AI. **6**

   b) Explain Neuro fuzzy and soft computing characteristics. **7**

OR

2. a) What are fuzzy sets? Explain operations of fuzzy sets. **6**

   b) Explain in detail: **7**
   i) Extension principle.
   ii) Fuzzy Relations.

3. a) Explain the architecture of fuzzy Inference system. **7**

   b) Write short note on- **7**
   i) Mamdani fuzzy model.
   ii) Sugeno fuzzy model.

OR

4. a) Explain characteristics of derivative free optimization. **7**

   b) Describe how genetic algorithms are different from other optimization and search procedures. **7**

5. a) Explain adaptive networks in brief. **6**

   b) What are Recurrent Networks? Explain extended back-propagation for recurrent networks. **7**

OR

6. a) Explain the significance of training set in supervised learning Neural Networks. **6**

   b) Explain architecture of Radial Basis function Networks. **7**

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7.	a)	Write a brief note on competitive learning networks.	**6**
	b)	Explain Hop field Networks in detail.	**7**

OR

8.	a)	Explain Kohonen Network Architecture in detail.	**7**
	b)	Explain the process of learning vector quantization in detail.	**6**
9.	a)	Explain architecture of ANFIS in detail.	**7**
	b)	Write a short note on hybrid learning algorithm.	**7**

OR

10.	Explain following data clustering algorithm in detail **any three.**	**14**

    i)   K-means clustering.

    ii)   Fuzzy c-means clustering.

    iii)   Mountain clustering methods.

    iv)   Subtractive clustering.

11.	a)	Explain input space partitioning in brief.	**6**
	b)	Explain the mechanism of Rule base organization.	**7**

OR

12.	Write short notes on-	**13**

    i)   Printer character Recognition.

    ii)   Hand written Numeral Recognition.

    iii)   GA-based fuzzy filters.

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