Total No. of Questions : 6]

SEAT No. :

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BE/INSEM/APR-591

B.E. (Computer Engineering)

410252D : SOFT COMPUTING AND OPTIMIZATION ALGORITHMS

(2015 Pattern) (Semester - II) (Elective - III)

Time : 1 Hour] *[Max. Marks : 30*

Instructions to the candidates:

1) ***Answer Q.1 or Q.2, Q.3 or Q.4, Q.5 or Q.6.***
2) ***Neat diagrams must be drawn wherever necessary.***
3) ***Figures to right side indicate full marks.***
4) ***Assume suitable data, if necessary.***

Q1) a) Compare Soft Computing & Hard Computing. **[5]**

b) Explain basic tools of Soft Computing and list out its applications. **[5]**

OR

Q2) a) Explain McCulloch Pitts Model. **[5]**

b) Compare Supervised learning with Unsupervised learning. **[5]**

Q3) a) What is hybrid system? List and explain classification of hybrid system. **[5]**

b) Compare Fuzzy set with Crisp set. **[5]**

OR

Q4) a) Explain different methods of defuzzification process. **[5]**

b) Let A = $\{a_1, a_2\}$, B = $\{b_1, b_2, b_3\}$, C = $\{c_1, c_2\}$. Let R be a relation from A to B defined by matrix. **[5]**

	b_1	b_2	b_3
a_1	0.4	0.5	0
a_2	0.2	0.8	0.2

Let S be a relation from B to C defined by matrix.

	c_1	c_2
b_1	0.2	0.7
b_2	0.3	0.8
c_3	1	0

Find Max-Min composition, Min-Max composition.

P.T.O.

Q5) a) Explain Fuzzy Inference System. **[5]**

b) Let X = {a, b, c, d} Y = {1, 2, 3, 4} and **[5]**

A = {(a, 0), (b, 0.8), (c, 0.6), (d, 1)}

B = {(1, 0.2), (2, 1), (3, 0.8), (4, 0)}

C = {(1, 0), (2, 0.4), (3, 1), (4, 0.8)}

Determine the implication relations:

i) if x is A then y is B

ii) if x is A then y is B else y is C.

OR

Q6) a) Compare Mamdani System and Sugeno Model. **[5]**

b) Explain Fuzzy Logic Control in brief with its advantages and disadvantages. **[5]**