BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI
(END SEMESTER EXAMINATION)

CLASS: M.TECH **SEMESTER : II**
BRANCH: EEE **SESSION : SP/19**

SUBJECT: EE571 SOFT COMPUTING TECHNIQUES IN ELECTRICAL ENGINEERING
TIME: 3.00 HOURS **FULL MARKS: 50**

INSTRUCTIONS:
1. The question paper contains 5 questions each of 10 marks and total 50 marks.
2. Attempt all questions.
3. The missing data, if any, may be assumed suitably.
***4*. Before attempting the question paper, be sure that you have got the correct question paper.**
5. Tables/Data hand book/Graph paper etc. to be supplied to the candidates in the examination hall.

Q.1(a)	What do you mean by soft computing Technique? With suitable examples illustrate the difference between soft and hard computing.	[5]
Q.1(b)	Compare biological neural network and artificial neural network. Explain basic models of ANN. Outline different types of learning.	[5]
Q.2(a)	Explain the error back propagation algorithm. What are the factors that improve the convergence of learning in a neural network?	[5]
Q.2(b)	Illustrate the difference between linearly and non-linearly separable problems. Write MATLAB codes to implement XOR function using multilayer and functional link artificial neural network.	[5]
Q.3(a)	Explain various approaches for hybridizing fuzzy logic, artificial neural network and genetic algorithm. List out any two applications of hybrid system in control engineering.	[5]
Q.3(b)	What is multiobjective optimization problem? Define the basic terminology used in multiobjective optimization. Explain the Economic Load Dispatch problem in multiobjective framework.	[5]
Q.4(a)	Draw the flow chat to forecast electrical load consumption in a particular area, using Genetic algorithm based artificial neural network. Write MATLAB code with proper comment in each line.	[5]
Q.4(b)	Write the algorithm for (i) identification of a non-linear system (ii) noise cancellation from a signal by applying any variants of artificial neural network.	[5]
Q.5(a)	What are the advantages fuzzy knowledge based controller (FKBC)? Discuss the approach to design of an adaptive FKBC.	[5]
Q.5(b)	What are the methods assign membership function to fuzzy variables? Describe various defuzzification procedures.	[5]

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