Course Code: 20CS5006 **R20**

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)
Siddharth Nagar, Narayanavanam Road – 517583

QUESTION BANK (DESCRIPTIVE)

Subject with Code: **Soft Computing(**20CS5006) Course & Branch: **M.Tech - CSE**

Regulation: **R20** Year &Sem: **I M.Tech & II - Sem**

UNIT –I

1.		Explain soft computing Constituents with simple examples.	[L2][CO1]	[12M
2.		Differentiate supervised learning and unsupervised learning.	[L1][CO1]	[12M]
3.		Describe Historical sketch of Soft Computing constituents and conventional AI approaches	[L2][CO1]	[12M]
4.	**a**	Describe the basics of Machine Learning.	[L2][CO1]	[6M]
	b	Explain the concept of Neural Network with simple example.	[L2][CO1]	[6M]
5.	**a**	Write short note on the Fuzzy Set theory.	[L1][CO1]	[6M]
	b	Describe evolutionary computation in soft computing.	[L2][CO1]	[6M]
6.		List out various characteristics of soft computing and explain in detail.	[L2][CO1]	[12M]
7.		Discuss the evaluation process of conventional AI to Computational Intelligence.	[L2][CO1]	[12M]
8.		Illustrate various components of soft computing.	[L3][CO1]	[12M]
9.	**a**	Compare Conventional AI and Computational Intelligence.	[L4][CO1]	[6M]
	b	Discuss about Machine Learning basics.	[L2][CO1]	[6M]
10.		Summarize the following: i) Neural Networks ii) Fuzzy Sets iii) Evolutionary computation	[L3][CO1]	[12M]

Course Code: 20CS5006 **R20**

UNIT-II

1		Illustrate the various operations on fuzzy sets and crisp sets**.**	[L2][CO3]	[12M]
2		Explain the relations of classical sets and fuzzy sets	[L2][CO3]	[12M]
3	a	Differentiate classical and fuzzy sets.	[L2][CO3]	[6M]
	b	Describe the properties of fuzzy sets.	[L4][CO3]	[6M]
4		Interpret the Mamdani Fuzzy models with examples.	[L4][CO3]	[12M]
5		List out various membership functions used in fuzzy logic and explain in detail.	[L2][CO3]	[12M]
6		Write a brief notes on the following: (i) Membership value assignment. (ii) Extension principle of Fuzzy set.	[L4][CO3]	[12M]
7	a	Explain Fuzzy IF-THEN Rules in detail.	[L3][CO3]	[12M]
8		Describe Fuzzy reasoning and Fuzzy decision making system in fuzzy set theory.	[L2][CO3]	[12M]
9		Explain Fuzzy Expert System in detail.	[L3][CO3]	[12M]
10		Analyse the Fuzzy Inference Systems with neat diagram**.**	[L6][CO3]	[12M]

Course Code: 20CS5006 **R20**

UNIT –III

1	a	Interpret the basic models of Artificial Neural Networks in breifly	[L2][CO2]	[12M]
2	a	Describe the Back Propagation Neural network with neat sketch.	[L1][CO2]	[12M]
3	a	What are the limitations of "Perceptron" model? Explain i.	[L2][CO1]	[6M]
	b	Analyze Exclusive-OR problem in Perceptron model.	[L4][CO3]	[6M]
4		Explain the concept of associative memory in ANN.	[L2][CO2]	[12M]
5		Illustrate the Extended Back Propagation for Recurrent Networks.	[L4][CO2]	[12M]
6		Discuss about Back Propagation Multilayer Perceptron.	[L3][CO2]	[12M]
7	a	Explain Adaptive Network with neat sketch.	[L2][CO2]	[6M]
	b	Sketch the Adaline Network and explain it briefly.	[L3][CO2]	[6M]
8		Explain the Radial Basis Function(RBF) with simple example.	[L2][CO1]	[12M]
9	**a**	Differentiate Supervised Learning and Unsupervised Learning.	[L3][CO2]	[6M]
	b	Draw the architecture of Perceptron model.	[L1][CO3]	[6M]
10		Illustrate the Jackpot Journey problem using Reinforcement Learing	[L3][CO2]	[12M]

Course Code: 20CS5006 **R20**

UNIT –IV

1		Explain the basic terminologies in Genetic Algorithm and how the chromosome is correlated with GA?	[L2][CO4]	**[12M]**
2		Discuss about Simple genetic algorithm with neat sketch.	[L2][CO4]	**[12M]**
3		Illustrate the basic operators and basic technologies in genetic algorithm	[L3][CO4]	**[12M]**
4		Summarize the following terms: a) Mutation operation b) Selection operation.	[L3][CO4]	**[12M]**
5	a	Differentiate genetic algorithm versus traditional algorithm.	[L2][CO4]	**[6M]**
	b	Describe the applications of genetic algorithm.	[L1][CO4]	**[6M]**
6		Evaluate the operational procedure of Genetic Algorithm.	[L2][CO4]	**[12M]**
7		List out various Selection Methods in Genetic Algorithm. Explain Roulette Wheel Selection Method in GA.	[L2][CO4]	**[12M]**
8	a	Explain different cross over operations performed in GA	[L2][CO4]	**[6M]**
	b	When to stop Genetic Algorithm in evaluation procedure? Explain it.	[L2][CO4]	**[6M]**
9	a	What are the different reproduction operators used in GA	[L2][CO4]	**[6M]**
	b	Explain Advantages and Disadvantages of Genetic Algorithm.	[L2][CO4]	**[6M]**
10		Briefly Explain need of mutation and crossover operators in GA.	[L2][CO4]	**[6M]**

Course Code: 20CS5006 **R20**

UNIT –V

1		Explain the basic features of MATLAB in detail.	[L2][CO5]	[12M]
2		How the arrays and Array operators are implemented using Matlib/python lib?	[L1][CO5]	[12M]
3		List out the various mathematical functions utilized in Matlib/Python lib.	[L1][CO5]	[12M]
4		How the file concepts are implemented and list out various file operations are in Matlib/Pythonlib.	[L2][CO5]	[12M]
5		Analyze Fuzzy Logic Tool Box utilized in Matlib.	[L4][CO5]	[12M]
6		Describe simple implementation of Artificial Neural Network and Fuzzy logic.	[L2][CO5]	[12M]
7		Illustrate recent trends in deep learning with simple examples.	[L3][CO5]	[12M]
8		Summarize the various classifiers involved in the implementation of Neural networks.	[L2][CO5]	[12M]
9		Explain the implementation of recently proposed soft computing techniques in detail.	[L2][CO5]	[12M]
10		Analyze the Neural Network tool box utilized in Mat lib/Python lib	[L4][CO5]	[12M]

Prepared by:R.M.Mallika