

Code No: 117HN

R13

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B. Tech IV Year I Semester Examinations, February/March - 2022

SOFT COMPUTING

(Common to CSE, IT)

Time: 3 Hours

Max. Marks: 75

Answer any Five Questions
All Questions Carry Equal Marks

- 1.a) Define constraint satisfaction problem (CSP). How CSP is formulated as a search problem? Explain with an example.
- b) Explain best first search algorithm. [9+6]
- 2.a) Express the following sentences in predicate logic formulae.
All people who are not poor and are smart and happy.
Those people who read are not stupid.
Many can read and is wealthy.
Happy people have exciting lives.
Anybody who is wealthy is not poor.
John is wealthy but not happy.
A smart person is not stupid.
- b) Convert the formulae into clausal form.
- c) Use resolution/reputation to answer the query: - "Can anybody be found with an exciting life"? [6+6+3]
- 3.a) Derive output equations and weight update equations for a multilayer feed forward neural network using back propagation algorithm.
- b) What are the limitations of "Perceptron" model? Explain. [10+5]
- 4.a) Explain the basic architecture and algorithm of discrete Hopfield networks.
- b) Explain the architectural details and algorithm of "ADALINE" model. [10+5]
5. Explain in detail about the counter propagation networks with an example. [15]
- 6.a) Illustrate in detail about the adaptive resonance theory networks with an example.
- b) Compare and contrast between supervised and unsupervised learning. [8+7]
- 7.a) What is meant by membership function? Explain in detail various membership functions of fuzzy logic systems.
- b) Discuss briefly about fuzzy relations. [10+5]
- 8.a) Explain different cross over operations performed in Genetic Algorithms.
- b) Explain applications of fuzzy logic in control system with one example. [8+7]

--ooOoo--