

Code No: 117HN

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD**B. Tech IV Year I Semester Examinations, October/November - 2020****SOFT COMPUTING****(Common to CSE, IT)****Time: 2 Hours****Max. Marks: 75**

**Answer any Five Questions
All Questions Carry Equal Marks**

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- 1.a) When will hill climbing search fail? Do steepest ascent hill climbing always find solutions? How might some problems be overcome in search?
- b) What are the constituents of constraint satisfaction problem? Write the formal definition of a constraint over a set of variables. [7+8]
2. Prove that A* heuristic search algorithm is optimal when applied in conjunction with a monotonic heuristic. State the conditions under which the algorithm is complete. [15]
- 3.a) Explain why a multilayered perceptron does not learn if the initial weights and biases are all zero.
- b) With a neat sketch, explain the back propagation network with necessary formulas. [7+8]
- 4.a) Summarize the characteristics and applications of Artificial Neural Networks.
- b) What are the basic models of ANN based on connection topology? Explain them in brief. [7+8]
- 5.a) What is unsupervised learning? Discuss the Kohonen's self-organizing maps in detail.
- b) Discuss in detail about learning vector quantization. [7+8]
- 6.a) Draw and explain the working of Hamming network.
- b) Explain the architecture of counter propagation networks, its training and working. [7+8]
- 7.a) Define fuzzy relation and max-min composition of fuzzy relations.
- b) Discuss about various membership functions used in fuzzy systems. [7+8]
- 8.a) What do you mean by crossover and mutation? Explain different types of crossover and mutation techniques.
- b) How traveling salesmen problem optimize using genetic algorithm? Explain. [7+8]

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