Reg. No.

B.E./B.Tech. DEGREE EXAMINATIONS, APR/MAY 2011.
Eighth Semester
(Regulation 2008)
COMPUTER SCIENCE AND ENGINEERING

CS504 SOFT COMPUTING

Time: 3 Hrs **Maximum : 100 Marks**

Answer all questions

PART – A (10 x 2 = 20)

1. State the constituents of soft computing.
2. How is soft computing different from conventional computing?
3. Define: reinforcement learning.
4. Distinguish: Uncertain reasoning from Fuzzy reasoning.
5. When do you need regression actually?
6. What is the effect of using genetic algorithms for machine learning?
7. What are the issues of knowledge acquisition in real world?
8. Why is nearest neighbour search a special case of clustering?
9. How are SVMs used in learning?
10. Do you have any control in feedback process while learning automatically? Justify.

PART – B (5 x 16 = 80)

11. Explain reasoning based decision-making with examples

12. (a) (i) What are neuro-fuzzy models? How are they useful? (8)
(ii) Distinguish: supervised learning vs. unsupervised learning. (8)

(OR)

12. (b)(i) Elaborate the operations of fuzzy sets with an example of your own (8)
(ii) What are hedges? Explain every one of them with neat diagrams. (8)

13. (a)(i) Explain a feed-forward neural network and its operation. (8)
(ii) Draw the working model of a fuzzy inference system. (8)

(OR)

13. (b) Cluster the following eight points (with (x, y) representing locations) into three clusters A1(2, 10) A2(2, 5) A3(8, 4) A4(5, 8) A5(7, 5) A6(6, 4) A7(1, 2) A8(4, 9). Initial cluster centers are: A1(2, 10), A4(5, 8) and A7(1, 2). The distance function between two points $a=(x1, y1)$ and $b=(x2, y2)$ is defined as:

$\rho(a, b) = |x2 - x1| + |y2 - y1|$. Use k-means algorithm to find the three cluster centers after the second iteration. (16)

14. (a) Explain the working of Naïve Bayes classifier with an example of your choice (16)

(OR)

14. (b)Compare and contrast hierarchical, SOM and EM data clustering algorithms as applied to document clustering. (16)

15. (a) (i) Obtain a block diagram involving machine learning for identifying colloquial words in a multi-lingual text document. (12)
(ii) List few applications of GA to Machine learning. (4)

(OR)

15. (b)(i) How are SVMs used in opinion mining? Discuss. (8)
(ii) How are SVMs used in near-duplicates detection in web search? (8)
