

**R09****Code: 9A15705**

B.Tech IV Year I Semester (R09) Regular &amp; Supplementary Examinations December 2015

**SOFT COMPUTING**

(Computer Science &amp; Systems Engineering)

Time: 3 hours

Max. Marks: 70

Answer any FIVE questions  
All questions carry equal marks

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- 1 (a) Discuss the key characteristics of AI problems with suitable example.  
(b) Explain strategies for problem reduction.
- 2 (a) Solve the following cryptarithmic problem using constraint satisfaction.  
CROSS + ROADS = DANGER  
(b) How predicate logic can be used for knowledge representation?
- 3 Explain the architecture, flowchart and training algorithm for perceptron.
- 4 (a) Compare Maxnet with hamming net.  
(b) Give the conditions over which the vectors are modified in the case of learning vector quantization Z.
- 5 (a) Give the fundamental architecture of the adaptive resonance theory network.  
(b) Explain the following operation on fuzzy sets;  
(i) Algebraic product.  
(ii) Bounded difference.  
(iii) Complement.
- 6 (a) With an example describe fuzzy composition technique.  
(b) How membership functions are used to define the fuzziness existing in the fuzzy set? Give illustration.
- 7 (a) What are the advantages of approximate reasoning?  
(b) Describe any two fuzzy measures.  
(c) Give an account on fuzzy decision making.
- 8 Explain how travelling sales person problem can be optimized using genetic algorithm. Quote suitable example.

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