



- Notes :
1. All questions carry marks as indicated.
 2. Solve Question 1 OR Questions No. 2.
 3. Solve Question 3 OR Questions No. 4.
 4. Solve Question 5 OR Questions No. 6.
 5. Solve Question 7 OR Questions No. 8.
 6. Solve Question 9 OR Questions No. 10.
 7. Solve Question 11 OR Questions No. 12.
 8. Due credit will be given to neatness and adequate dimensions.
 9. Assume suitable data whenever necessary.
 10. Illustrate your answers whenever necessary with the help of neat sketches.

1. A) For each of the following give five reasons why: 6
- a) A dog is more intelligent than a worm.
 - b) A human is more intelligent than a dog.
 - c) An organization is more intelligent than an individual human. Based on these, give a definition of what 'more intelligent' may mean.
- B) Give as many disciplines as you can whose aim is to study intelligent behavior of some sort. For each discipline find out where the behavior is manifest and what tools are used to study it. Be as liberal as you can as to what defines intelligent behavior. 7

OR

2. A) What is computational intelligence? Explain technological models of mind. 7
- B) What is role of representation and reasoning in relation with computational intelligence? Explain it in detail. 6
3. A) Describe how a learning automation could be developed to learn how to play the game of tic-tac-toe optimally. Is this a cla and or a simple learning automation system. 7
- B) Rule based system often contains rule with several conditions in their left side. What is this true in mycin? 7

OR

4. A) Express the following things in predicate calculus: 8
- a) An apple a day keeps the doctor away
 - b) Blondes have more fun
 - c) Every elephant has a trunk
 - d) Everybody in this room speak some language.
- B) What is fuzzy reasoning? Compare fuzzy set operations with normal operations. 6

5. A) Contrast expert system and neural network in term of knowledge representation and knowledge acquisition. 7
- B) What is back propagation algorithm? Explain it in details. 6

OR

6. A) Explain Neural network architecture in detail, also comment on supervised and unsupervised learning network. 7
- B) Explain Kohonen self-organization networks. 6
7. A) Differentiate between Traditional algorithm and Genetic algorithm. Also comment on role of fitness function. 7
- B) Name and describe the main features of Genetic Algorithms (GA) 7

OR

8. A) Suppose the new population consists of the six offspring individuals received by the crossover operations in the above question. Evaluate the fitness of the new population showing all your workings. Has the overall fitness improved? 7
- B) What two requirements should a problem satisfy in order to be suitable for solving it by a GA? 7
9. A) Explain in detail Nature inspire computing. 6
- B) Explain in brief, working of an Ant colony systems. 7

OR

10. A) What is swarm intelligence? Explain it in detail. 6
- B) Explain in detail development of ant colony system. 7
11. A) Explain Neuro-Fuzzy systems in detail. 6
- B) What is Hybrid Intelligent systems? Explain in detail. 7

OR

12. A) Explain evolving connectionist model. 6
- B) What is evolutionary neural networks? Explain in detail. 7
