BACHELOR OF ENGINEERING IN INFORMATION TECHNOLOGY
4th YEAR 1st SEMESTER Supplementary EXAMINATION, 2017
Artificial Intelligence and Evolutionary Computing

Time: 3 Hours

Full Marks: 100

Answer any FIVE

20 x 5 = 100

1.

8 + 5 + 5 + 2

  a. Describe the differences between symbolic and sub-symbolic approaches in AI.
  b. How Heuristic Search is important to reduce search space.
  c. Describe the differences between Backtracking and Graph Search control strategies in AI.
  d. Define the Horn clause with its utility.

2. Consider the following axioms.

20

  a. Every child loves anyone who gives the child any present.
  b. Every child will be given some present by Santa if Santa can travel on Christmas eve.
  c. It is foggy on Christmas eve.
  d. Anytime it is foggy, anyone can travel if he has some source of light.
  e. Any reindeer with a red nose is a source of light.

  Prove that if Santa has some reindeer with a red nose, then every child loves Santa.

3. Answer following questions:

5 x 4 = 20

  a. What is the difference between uninformed search and informed search?
  b. What do you mean by Artificial Intelligent System?
  c. Explain the term "grid space world" and its use in Artificial Intelligent.
  d. What are the possible termination conditions used in genetic algorithm?
  e. What is agent? Give some example of real world agents.

4.

6 + 8 + 6

  a. How N point cross over effects the Genetic Algorithm (GA)?
  b. Justify the statements:
      i. GA does not stick at local minima.
      ii. GA never guarantees to provide optimum output.
  c. Discuss how will you use Genetic algorithm in engineering Optimization / design problem.

5. Explain Breadth First Search and Depth First Search with pseudo code for the following state space graph where Arad is the start state and Bucharest is the Goal state.   10 + 10

6.

5 + 5 + 10

  A) Explain the concept of learning with example
  B) What is classifier system, explain with example?
  C) What are different Learning Classifier System approaches, explain them in details.