Bachelor Level/ Third Year/ Fifth Semester/ Science   **Full Marks: 60**

Computer Science and Information Technology (CSc. 304)   **Pass Marks: 24**

(Artificial Intelligence)   **Time: 3 hours**

Candidates are required to give their answers in their own words as far as practicable.

**The figures in the margin indicate full marks.**

Attempt all the questions. (10x6=60)

1. Define with suitable supporting statements and examples, "Artificial Intelligence is the system that act likehumans".

2. For each of the following agents, determine what type of agent architecture is most appropriate (i.e., table lookup, simple reflex, goal-based or utility-based).

a. Medical diagnosis system

b. Satellite imagine analysis system

c. Part-picking robot

d. Refinery controller

3. Consider the following graph, steps cost is given on the arrow: Assume that the successors of a state are generated in alphabetical order, and that there is no repeated state checking. A is the starting node and   C is goal node.
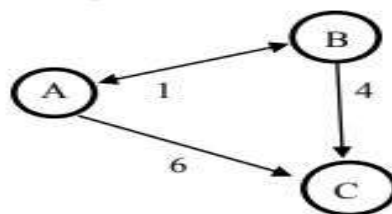
a. Of the four algorithms breadth-first, depth-first and iterative-deepening, which find a solution in this

case?

b. Write sequence of node expanding by algorithm if finds solution.

4. Define learning. Why learning frame work is required? Explain about learning frame work with block

diagram and examples.

5. Briefly describe the approaches of knowledge representation with example.

6. Consider the following sentence:

[(food => party) V (drinks => party)] => [(food ^ drinks) => party]

a. Convert the right hand and left hand sides of main implication into CNF.

b. Prove the validity of sentence using resolution.

7. Convert the following sentence into predicate logic.

a. "No dog bites a child of its owner"?

b. "No two adjacent countries have the same color"?

8. Why disjunctive normal form is required? Explain all the steps with examples.

9. What is the difference between symbolic and non-symbolic AI? Represent the following knowledge in

semantic network.

Robin is bird

Clyde is a Robin

Clyde owns a nest from spring 2014 to fall 2014

10. Explain the steps of Natural Language Processing.