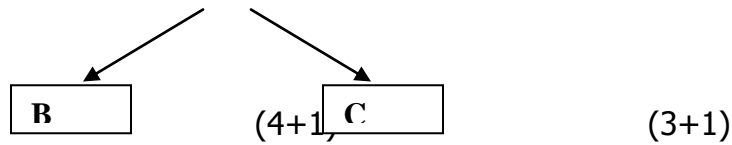


**BCA (C: 501): (Artificial Intelligence)****Unit 1**

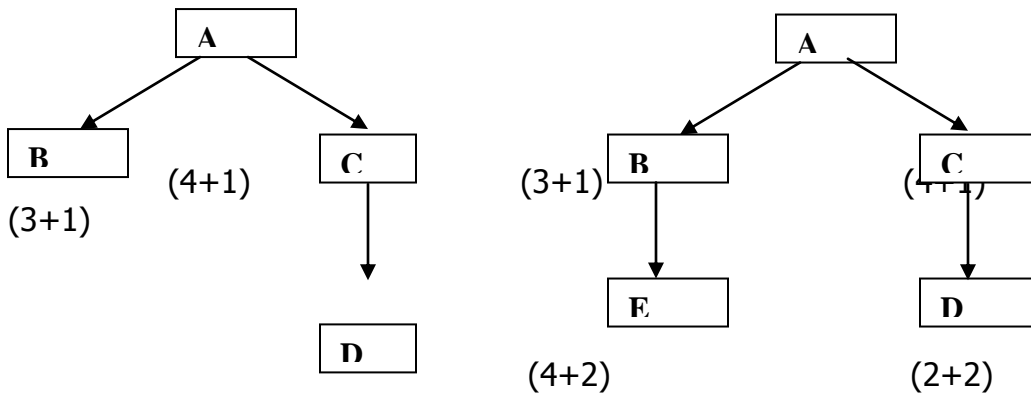
1. Define and describe the difference between knowledge, belief, hypothesis and data.
2. What is the difference between declarative and procedural knowledge?
3. Look up the meaning of epistemology in a good encyclopedia and prepare a definition.
4. The Turing test has often been incorrectly interpreted as being a test of whether or not a person could distinguish between responses from a computer and responses from a person. How does this differ from the real Turing test? Are the two tests equivalent? If not, explain why they are not?
5. What important knowledge products are currently being marketed like other commodities? What are some new knowledge products likely to be sold within the next ten years?
6. Briefly describe the meaning of knowledge representation and knowledge acquisition.
7. Give four different ways to represent the fact that John is Bill's father.
8. Given the following wffs  $P \rightarrow Q$ , and  $P$ , show that  $Q$  is a logical consequence of two preceding wffs:
  - a) Using a truth table
  - b) Using Theorem.
9. What is A.I. Give definition of A.I.?
10. What is the Scope of A.I.
11. Define general issues of A.I.
13. What is State Space problem? Where it is applicable.
14. A.I. is useful in Vision and Speech processing and Expert system.
15. How can computer system will become intelligence. Describe briefly.

**Unit2**

1. Give an example of a problem for which breadth-first-search would work better than Depth-first-search
2. Describe how the branch-and-bound technique could be used to find the Shortest to a water jug problem.
3. When would best-first-search be worse than simple breadth-first-search?
4. Suppose that first step of the operation of the best-first-search algorithm Results in the following situation ( $h(a) < h(b)$  means that the value of  $h'$  at a node is  $a$  and the value of  $g$  is  $b$ ).



The second and third steps then result in the following sequence of situation.



(4+2)

- (a) What node will be expanded at the next step?
- (b) Can we guarantee that the best solution will be found?

5. What is default reasoning and how can you perform it with non-monotonic reasoning?
6. What is Mean-End-Analysis?
7. Write A\* algorithm and show how A\* algorithm can be used to find Minimal-cost over all path or simply any path as quickly as possible.
8. How best-first-search algorithm supports heuristic evaluation function?
9. When would best-first-search be worse than simple-first-search?
10. Find a good heuristic function for following
  - (a) Monkey and Banana problem
11. Give an example of an admissible heuristic for the 8-puzzle.
12. Find a good heuristic function for following.
  - (a) Traveling Salesman problem.
13. Write four properties a good system for the knowledge representation in Particular domain should posses.
14. What are issues for knowledge representation?
15. What is inferential knowledge and procedural knowledge?

**Unit3**

1. Write four properties a good system for the knowledge representation in Particular domain should posses.

2. What are issues for knowledge representation?
3. What is inferential knowledge and procedural knowledge?
  
4. What is Frame problem?
5. Consider the following sentences
  - John likes all kinds of food
  - Apples are food
  - Chicken is food
  - Anything anyone eats and isn't killed by its food
  - Bill eats peanuts and is still alive
  - Sue eats everything Bill eats.
  - (a) Translate these sentences into formulas in predicate logic
  - (b) Prove that John likes peanuts using backward chaining
  - (c) Convert the formulas of part a into clause form
  - (d) Prove that John likes peanut using resolution
  - (e) Use resolution to answer the question, "what food does Sue eat?"
  
6. Assume the following fact:
  - Stove only likes easy courses
  - Sciences courses are hard
  - All the courses in the basket weaving department are easy
  - BK301 is a basket weaving course.Use resolution to answer the question, "what course would Steve like".
7. What is wrong the following argument.
  - Men are widely distributed over the earth.
  - Socrates is a man.
  - Therefore, Socrates is widely distributed over earth.How the facts represented by these sentences should be represented in logic so that this problem does not arise?
8. A problem-solving search can proceed either forward (from a known start State to desired goal state) or backward (from a goal state to a start state). What factors determine the choice of direction for a particular problem?
9. Under what conditions would it make sense to use both forward and Backward chaining? Give an example where both are used.
10. Explain the difference between forward and backward chaining and Under what conditions each would be best to use for a given set of problems.
11. What are the main advantages in keeping the knowledge base separate? From the control module in knowledge-based system?
12. Give five examples of facts that are difficult to represent and manipulate in Predicate logic.
14. Difference between semantic Nets and Partitioned Nets
- 15 .Define modues ponens.

#### Unit4

1. Defined AND/ OR graph.
2. Differentiate forward chaining and backward chaining
3. Define structural knowledge representation
4. What are semantic nets?
5. Differentiate between semantic net and partitioned semantic net
6. What is WFFS and predicate Logic?
7. Defined briefly about associative net work
8. What is difference between uniform or blind search and BFS?
9. Write the algorithm or brand and bound search and give an example.
10. What is conceptual graph design a conceptual graph for following (mammal's milk? hair mouse rodent.
11. Create a frame network for a terrestrial motor vehicle (car, truck, motorcycle) And give one complete phrame in details for cars which includes the slots for main component parts ,their attributes, their relationship Between parts
12. What is different type of learning?
13. How is machine learning distinguished from general knowledge acquisition? Explain why some editors can be distinguished as "intelligent
14. Which searching algorithms is best among the following and why. (BFS, DFS, Best first search, hill climbing).
15. Where is State-Space problem is most suitable. Give an example.

#### Unit 5

1. What characteristic feature of Expert system?
2. Write importance of Expert System.
3. Explain the production system inference cycle.
4. What is CASNET? What are its different knowledge types?
5. What is PIP?
6. Explain Blackboard System Architecture.
7. How knowledge can be structured in a top-to-bottom manner? Explain with example.
8. What is the feature & capabilities developer should offer in expert system?
9. What are KEC, OPS5 and Radian Rule Master?
10. How do rules in PROLOG differ from general production system rules?
11. Why is it important that an expert system be able to explains the why and how questions related to a problem solving session?
12. Give the advantages of expert system architecture based on decision tress over those of production rules. What are the main disadvantages?
13. Give three examples of applications for which the use of analogical Architecture would be suitable in expert system.

14. Explain how uncertainty is propagated through a chain rules during a consultation with an expert system which is based on the MYCIN architecture.
15. Select a problem domain that requires some special expertise and consult with an expert in the domain to learn how he or she solves typical problems. After collecting enough knowledge to solve a small subset of problems. Create Rules which could be used in a knowledge base to solve the problems. Test the Use of the rules on a few problems which have been suggested by the expert and Then get his or her confirmation.