

Roll No.

Total No. of Pages : 02

Total No. of Questions : 07

**BCA (Sem.-6)**  
**ARTIFICIAL INTELLIGENCE**  
Subject Code : UGCA-1945  
M.Code : 91689  
Date of Examination : 02-07-22

Time : 3 Hrs.

Max. Marks : 60

**INSTRUCTIONS TO CANDIDATES :**

1. **SECTION-A** is **COMPULSORY** consisting of **TEN** questions carrying **TWO** marks each.
2. **SECTION-B** contains **SIX** questions carrying **TEN** marks each and students have to attempt any **FOUR** questions.

**SECTION-A**

**1. Write briefly :**

- a. Define intelligence. What is the intelligent behaviour of a machine? Discuss various levels of artificial intelligence.
- b. Discuss the history of artificial intelligence briefly.
- c. What is Bayesian reasoning? How does an expert system rank potentially true hypotheses? Give an example.
- d. What are a fuzzy set and a Membership function? What is the difference between a crisp set and a fuzzy set? Determine possible fuzzy sets on the universe of discourse for man weights.
- e. Write down the steps of breadth first search. Illustrate with example.
- f. Explain the process of memory bounded heuristic search.
- g. Discuss the advantages of using context-free grammars in design of practical natural language parsers.
- h. Give a heuristic that a block-stacking program might use to solve problems of the form “stack block X on block Y”.
- i. What is an expert system shell? What are the fundamental characteristics of an expert system?
- j. What is pattern recognition? Discuss its applications.

## SECTION-B

2. What are the different approaches in defining artificial intelligence? What characteristics must a problem possess to be solved using artificial intelligence? Write a description of 8-queens problem.
3. Discuss the syntax and semantics of propositional logic. List the rules of inference for propositional logic. Consider the following facts and construct a step-by-step proof by resolution of the statement “John likes peanuts”.
  - a. John likes all kinds of food.
  - b. Apple and vegetable are foods.
  - c. Anything anyone eats and is not killed by is food.
  - d. Anil eats peanuts and is still alive.
  - e. Harry eats everything that Anil eats.
4. How are objects related in frame-based systems? What are the ‘a-kind-of’ and ‘a-part-of’ relationships? Give examples.
5. Differentiate between informed search and uninformed search. Explain depth first search technique with example. Discuss the performance of this technique.
6. Explain the architecture of an expert system. What are rule based system architecture and non production system architecture?
7. Write about the various tasks in natural language processing in detail. What are the main difficulties in natural language understanding?

**NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.**