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B.Tech. (Sem. - 7th/8th)

SYMBOLIC LOGIC AND LOGIC PROCESSING

SUBJECT CODE : CS - 402

Paper ID : [A0480]

[Note : Please fill subject code and paper ID on OMR]

Time : 03 Hours **Maximum Marks : 60**

Instruction to Candidates:

1) Section - A is **Compulsory.**
2) Attempt any **Four** questions from Section - B.
3) Attempt any **Two** questions from Section - C.

Section - A

Q1) *(10 × 2 = 20)*

a) What are Horn Clauses?

b) Explain need and concept of Unification?

c) What are control statements in Prolog?

d) How do we write the programs in Prolog?

e) What are the common uses of CUT predicates in Prolog.

f) What is first order logic?

g) What is a PROLOG Planner?

h) What are declarative and procedural semantics?

i) Explain Fuzzy sets.

j) What is natural language processing?

Section - B

(4 × 5 = 20)

Q2) Write a program to sum first 10 natural numbers using Prolog?

Q3) What are the input and output functions in Prolog?

Q4) Define the predicate **maxlist(List, Max)** so that **Max** is the greatest number in the list of numbers List.

Q5) Explain the problems with cut and negation.

Q6) Write a program to sort the list of numbers using Prolog.

Section - C

(2 × 10 = 20)

Q7) Describe the following with respect to Prolog.

(a) Operators.

(b) Recursion.

(c) Advanced features of Prolog.

(d) FAIL Predicates.

Q8) Write an iterative and recursive programs in Prolog.

(a) To reverse a list.

(b) To split the list of integers such that one contains positive and other contain negative numbers.

Q9) Design a Prolog program **unique(Bag, Set)** that takes a **Bag** (a list may contains duplicate elements) returns a Set (no elements are repeated).