

## Smt. Indira Gandhi College of Engineering

#### Ghansoli – Navi Mumbai

### **Computer Engineering Department**

Academic Year 2022-23 (Even Sem)

**Student Name:** Aryan Mishra **Roll No:** 54 **Class:** TE **Sem:** VI

Course Name: Artificial Intelligence Lab

Course Code: CSL604

# Experiment No. 06

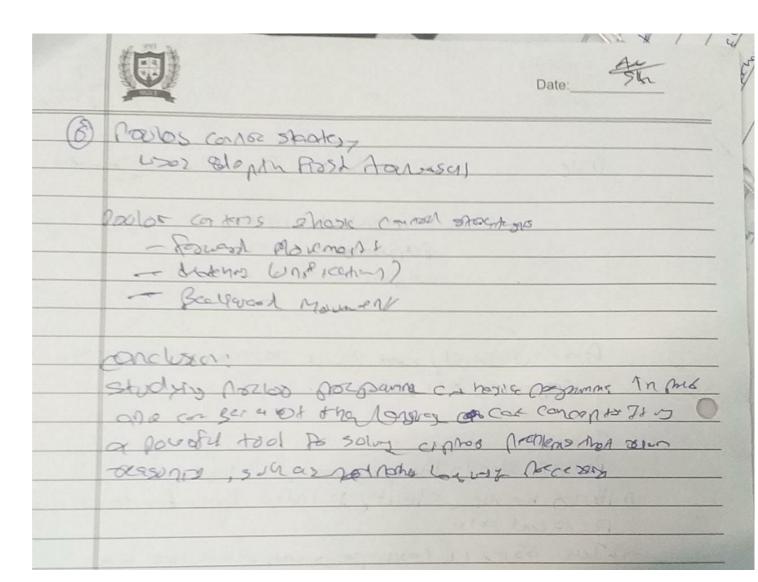
**Experiment Title:** INTRODUCTION TO PROLOG PROGRAMMING & BASIC PROGRAMMING IN PROLOG

			Marks (10)				
Date of Performance	Date of Submission	A	В	C	D	E	Sign / Remark
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**A:** On Time Submission **B:** Understanding **C:** Analytical Skill

**D:** Critical Thinking **E:** Presentation

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#### 1. SUM OF N NATURAL NOS. USING RECURSION

```
sum_n(0, 0).
sum_n(N, Sum):-
N > 0,
N1 is N - 1,
sum_n(N1, Sum1),
Sum is N + Sum1.

GNU Prolog 1.5.0 (64 bits)
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compiling C:/GNU-Prolog/examples/ExamplesC/examp.pl for byte code...
C:/GNU-Prolog/examples/ExamplesC/examp.pl compiled, 6 lines read - 836 bytes written, 11 ms
| ?- sum_n(5,Sum).
Sum = 15 ? |
```

#### 2. COMPUTING FACTORIAL OF A POSITIVE NUMBER

```
fact(0,1).
fact(N,F):-
(

N>0 ->
(

N1 is N-1,
fact(N1,F1),
F is N*F1
)
).
```

```
GNU Prolog 1.5.0 (64 bits)

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compiling C:/GNU-Prolog/examples/ExamplesC/examp.pl for byte code...

C:/GNU-Prolog/examples/ExamplesC/examp.pl compiled, 11 lines read - 875 bytes written, 11 ms

| ?- fact(5,F).

F = 120 ? |
```

#### 3. ADD THE ELEMENTS OF AN INTEGER LIST

```
sum_list([], 0).
sum_list([H|T], Sum) :-
sum_list(T, Rest),
Sum is H + Rest.
```

```
GNU Prolog 1.5.0 (64 bits)
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compiling C:/GNU-Prolog/examples/ExamplesC/examp.pl for byte code...

C:/GNU-Prolog/examples/ExamplesC/examp.pl compiled, 3 lines read - 652 bytes written, 10 ms

error: C:/GNU-Prolog/examples/ExamplesC/examp.pl:1: native code procedure sum_list/2 cannot be redefined (igno | ?- sum_list([1, 2, 3, 4, 5], Sum).

Sum = 15

yes
| ?- |
```

#### 4. COMPUTE THE LENGTH OF A LIST.

```
length([], 0).
length([_|T], N):-
length(T, N1),
N is N1 + 1.
```

```
GNU Prolog 1.5.0 (64 bits)

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compiling C:/GNU-Prolog/examples/ExamplesC/examp.pl for byte code...

C:/GNU-Prolog/examples/ExamplesC/examp.pl compiled, 3 lines read - 634 bytes written, 8 ms

error: C:/GNU-Prolog/examples/ExamplesC/examp.pl:1: native code procedure length/2 cannot be redefined (ignored | ?- length([1, 2, 3, 4, 5], N).

N = 5

yes

| ?-
```

#### 5. DETERMINE IF A GIVEN VALUE IS A MEMBER OF THE LIST

```
\begin{aligned} & member(X, [X | \_]). \\ & member(X, [\_|T]) :- member(X, T). \end{aligned}
```

```
GNU Prolog 1.5.0 (64 bits)

Compiled Jul 8 2021, 12:33:56 with cl

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compiling C:/GNU-Prolog/examples/ExamplesC/examp.pl for byte code...

C:/GNU-Prolog/examples/ExamplesC/examp.pl compiled, 1 lines read - 444 bytes written, 7 ms

error: C:/GNU-Prolog/examples/ExamplesC/examp.pl:1: native code procedure member/2 cannot be redefined (ignore)

| ?- member(3, [1, 2, 3, 4, 5]).

true ?

yes

| ?- member(6, [1, 2, 3, 4, 5]).

no

| ?- |
```