PPS - C

Part A:

1. Program means a set of instructions that make up the solution after they have been coded into a programming language

2. Variable names cannot start with digit

3. The && operator is true only when both the operands are true

4. float a = 654.1239;
printf("%.0.3f", a); → 654.124 (Rounded to 3 decimal points)

5. & → Bitwise AND (AND Gate)

6. Compilation error (undefined variable j)

7. x = 5*9/3+9
Same precedence ∴ Move towards → * → / → /
= (5*9)/3+9
= (45/3)+9
= 15+9
∴ x = 24

8. a = 10 // 1010 (8 4 2 1)
a << 2 :- 0 0 0 0 1 0 1 0
0 0 1 0 1 0 0 0 = 32+8
(128 64 32 16 8 4 2 1) = 40
∴ Output: 40

%x → outputs hexadecimal representation
∴ for (%x, a) :- 40
We know, 0 → 0 ∴ %0 in hexadecimal is represented as A
1 → 1 In C,
9 → 9
10 → A
11 → B
12 → C
13 → D
14 → E
15 → F
16 → 10
17 → 11
18 → 12
we get output: a onwards (a > 15)
(Value of a − 6)

9. D = 50 + 12 * 4/32 / 4 - 10

Here, we have 1) *, /, % → Same precedence & Associativity (L→R)

2) +, − → " " " " "

① has higher precidence than ②

3) = → Lowest precidence in expression = 4

∴ Order of evaluation :- * / % + - =

10.
```
int main(){
    static int i=5;
    if(--i){
        printf("%d",i);
        main();
    }
    return 0;
}
```

Here, this if-condition is executed because the condition is non-zero. As long as if(--i) > 0, it will execute its if-block

∴ Output :- 4 3 2 1

Part-B :-

11.
```
/* Program to Find Area of Circle */        → Documentation
#include<stdio.h>
#include<conio.h>                            → Preprocessing Libraries
#define pi 3.14

int main(){
    float area;                              → Local Variable Declaration
    int r;
    printf("Enter radius:");
    scanf("%d",&r);
    area = pi*r*r;                           → Execution
    printf("Area of circle = %.2f", area);
    return 0;
    getch(); //Takes input for single character from user
}
```

12. Algorithm:- Step by step solution to solve a problem

Flowchart:- It is a diagram which defines inputs and how each input will be manipulated all throughout the program to give an output

Pseudocode:- It is a low-level language representation of a problem using a combination of English and Math operators to define each step in an algorithm.

13. Precedence:- The priority of grouping different types of operators with their operands.

Associativity:- It is the left-to-right or right-to-left order for grouping operands to operators that have the same precedence

Eg:- ① 6 * 3 / 20

Here, * & / has same precedence

∴ We will follow their associativity → left to right

∴ (6 * 3) / 20

= 18 / 20

= 0

(* → / for this expression)

② 6 / 3 * 20

Associativity left to right :- / → *

∴ (6 / 3) * 20

= 2 * 20

= 40

14. Static local variable :- It is a local variable which retains its value between functions calls or block. It is visible only in the function/block it is defined in

Static global variable :- It is a global variable which retains its value in the file it is defined in and only visible on that file

External storing variable :- Extern stands for external storage class. The external class is used when we have global functions or variables which are shared between two or more files.

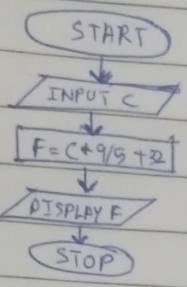
15. Use the formula → Surface area of cuboid = 2lw + 2lh + 2wh

Part C :-

16. Algorithm :-

START
DECLARE F, C
READ C from the user
Calculate Fahrenheit using formula F = C * 9/5 + 32
DISPLAY F
STOP

Flowchart :-



17. Algorithm :-

START
DECLARE BP, HRA, DA, GS
Read BP from the user
Calculate HRA = (30/100.0) * BP
Calculate DA = (80/100.0) * BP
Calculate GS = BP + HRA + DA
Display GS
STOP

Flowchart :-