

PPS CT-3Part A:-

1. Every C program consists of one or many functions.
2. Real
3. `int $main;` // Special characters in variable identifiers not valid/allowed (at beginning of identifier)
4. `=` // Assignment operator
5. `5 3` // a & b swapped values with each other
6. `int sum = 2 + 4/2 + 6*2;` // B E D M A S

$$= 2 + 2 + 6*2$$

$$= 2 + 2 + 12$$

$$= 16$$

E = exponentiation/multiply
B = Bracket
D = Division
M = Add
A = Subtract
7. `int a = 3`
`int res = a++ + ++a + a++ + ++a`

$$a+1=3 \quad a+1=4 \quad a=4 \quad 5+1+1=7$$

$$3+5+5+7=20$$
8. Variable names cannot start with a digit
9. Modulus // Returns remainder of division of 2 numbers.
10. $9/2 \rightarrow 4$ [\because %d means int]
 $9.0/2 \rightarrow 4.5000$ [\because %f means float]
 \therefore Output :- 4 4.5000

Part B:-

1. **Keywords**:- They are reserved words with special meaning. Keywords cannot be used as identifiers/for naming variable.

Constants:- They are entities whose value can't be changed during the course of program execution. They are usually literals.

Variable:- They are entities whose value can be changed during the course of program execution. They are usually identifiers.

2. A header file is a file with .h extension which contains declarations/information about a particular group of functions.

For example:- (i) **stdio.h** has:-

- **scanf()** → for taking input from user
- **printf()** → for displaying desired output on the screen.

(ii) **math.h** has:-

- **pow()** → for raising a number's power to a ~~certain~~ ^{base} number.
- **pow()** → for raising base number's power to a certain exponent
- And various other mathematical operations

When we want to use a function of a particular library, we need to pre-process/import it with the **#include**.

This pre-processing of C library is done at the **top or beginning** of any C code.

Thus, **#** → used for pre-processing C library before code execution. It links header files to system libraries.

3. Variable is a memory space where we can store a value of a particular data type.

Rules for variable declaration :-

- (i) Variable name can start with alphabets & underscores only
- (ii) Its name can't start with digit/special characters
- (iii) Whitespace not allowed in between variable name
- (iv) Variable name must not be any reserved word/keywords (Eg: goto)

4. $(age \geq 18) ? \overset{\text{printf}}{\text{"Eligible to vote"}} : \overset{\text{printf}}{\text{"Not eligible to vote"}};$

5. $int\ big = (a > b) ? (a > c ? a : c) : (b > c ? b : c);$
Part C :-

(A) (a) $\text{printf}("1, 2, 3, 4 \n");$

(b) $\text{printf}("%d %d %d %d \n", a, b, c, d);$

(c) $\text{printf}("1, \n");$
 $\text{printf}("2, \n");$
 $\text{printf}("3, \n");$
 $\text{printf}("4, \n");$

(B) Use $\text{printf}()$ & $"\n"$ to print pattern