CLASS-11th

CHAPTER-3 (CONSTANTS,VARIABLES AND DATA TYPES)

MULTIPLE CHOICE QUESTIONS:

1. **Which of the following is not a valid data type in C language?**
   a) char b) float c) long d) double

Ans : char

2. **Which of The following is not an arithmetic operator?**

   a) + b) & c) % d) *

Ans : &

3. **The operator % can be applied to**

   a)Float values b)Double values c)Integral values d)All of these

Ans : Integral Values

4. **Which of the following is not a valid integer constant type of int?**

   a) 3750 b) 32800 c) -32767 d) 0

Ans : 32800

5. **A variable of the type int in C can take the value in range**

   a) 0 to 32767 b) 0 to 65535 c) -32768 to 32767 d) -32767 to 32768

Ans : -32768 to 32767

6. **Which of the following is not a reserved word in c language**

   a) for b) goto c) doo d) Switch

Ans : doo

7. **What will be the value of the expression 5/6/3+8/3**

   a) 4 b) 2 c) 2.3333 d) None of these

Ans : 2

8. **Identify which of the following is C token**

   a) keywords b) constants c) operators d) All of these

Ans : constants

9. **Which of the following is not a keyword in C**

   a) const. b) main c) size of d) void

Ans : main

10. **The no. of binary arithmetic operator is**

   a) 5 b) 4 c) 6 d) 7

Ans : 5

DO THE FOLLOWING STATEMENTS :

1. Which of the following are invalid variables name?

a) roll-no b) interest_paid c) SUM d) none of these

Ans : roll-no

2. **What will be the result of following program segment?**

```
int x;
x=11;
x=12;
x=13;
printf("%d%d%d\n",x,x,x);
}
```

Ans : 13 13 13

3. **What is printed by the following program?**

```
main( )
{
int a,b,c;
b=4;
c=a+b;
}
```

Ans : This will give garbage output bcz we can't assigned value to a variable.

4. **What will be the output of following program?**

```
void main(void)
{
printf("%d", 'B');
}
```

Ans : 66

1. **What will be the output of following program?**

```
void main(void)
{
float x = 1/2.0 -1/2;
printf ("%.2f", x);
}
```

Ans : 0.50

1. **If x=12.4568 What value will be printed if the print function is used asand printf**

```
printf("%.3f", x);
```

Ans : 12.457

2. **Find out the errors in the program?**

```
void main (void)
{
float a,b;
```

```
printf("\nEnter value of a:");
scanf("%f",a);
b=a*3;
printf("\nValue of b = %f\n", b);
}
```

Ans :

```
#include<stdio.h>
void main (void)
 {
 float a,b;
 printf("\nEnter value of a:");
 scanf("%f",&a);
 b=a*3;
 printf("\nValue of b = %f\n", b);
 }
```

& Symbol missing in Scanf( ) statement.

3. **int x=3; n=4;**

```
x= ++n;
printf("%d", x)
x= x++;
printf("%d", x)
```

Ans : 5 6

SOLVE THE GIVEN BELOW PROBLEMS:

1. **Correct the statement X=(float) 5/2**

Ans :

```
#include<stdio.h>
void main (void)
{
float X;
X=(float) 5/2;
printf("\nValue of b = %f\n",X);
}
```

2. **What is the value of c?**

```
main( )
{
int c;
float a,b;
a= 245.05;
b= 40.02;
c= a+b;
}
```

Ans : 285

3. Find the value of a and c?

```
main ( )
{
int a,b,c;
b=2;
a=2 *(b++);
```

```
c=2*(++b);
 }
```

Ans : a=4,c=8

1. Find the value of a and b?

```
main ( )
int a,b;
a=2;
b= ++a+2;
printf("Value of a is %d and b is %d\n", a, b);
```

Ans : a=3,b=5

STATE WHETHER TRUE OR FALSE :

1. **Variable is such quantity that changes its value during the execution of the program: True**
2. **A Delimiter is a symbol that has a syntactic meaning and significance: True**
3. **The size of operator is its data type : True**
4. **A char data type always occupies one byte : True**
5. **Semicolon is a delimiter of one declaration : True**

WRITE DOWN THE APPROPRIATE WORD OR OUTPUT OF THE FOLLOWING :

1. **A computer splits a program into a number of parts**

   Ans : Tokens

2. **Modifier is used to declare a variable as constant.**

   Ans : const

3. **If a=-11 and b=-3 then what is the value of a%b**

   Ans : -2

4. **The number of relational operators in C language is**

   Ans : 6

5. **If we have *,/,(),% operators then which of them have higher precedence**

   Ans : ( )

ANSWER THE FOLLOWING QUESTIONS:

1. **What is the process of storing constant in a variable ?Give Example?**

Ans : By Using const Keyword:

```
#include<stdio.h>
int main( )
 {
 const int b = 12;
printf("\nThe value of variable b : %d", b);
 return 0;        }
```

The output of the above program is as follows.

The value of variable b : 12

By Using #define preprocessor directive :

Example

```
#include<stdio.h>
#define num 25;
int main( )
  {
printf("The value of num is: %d", num);
return 0;
}
```

The output of the above program is as follows.

The value of num is: 25

2. What does the statement indicate : big=a>b?a:b;

Ans : This statement always assign Big Variable a bigger value and stored it.

Here, if value of a variable is bigger than b ,Value of a variable is assigned to Big otherwise a variable value is assigned to Big.

Example: Two Programs in one value of Variable a is big and in other value of Variable b is big.

```
#include<stdio.h>
main( )
{
int a=15,b=10, big;
big=a>b?a:b;
printf("%d", big);
}
```

Output: Big=15

```
#include<stdio.h>
main( )
{
int a=15,b=40, big;
big=a>b?a:b;
printf("%d", big);
}
```

Output: Big=40

3. Write down the logical statements for the following?

a) Marks obtained is more than 95 for all students whose category is not T?

Ans :

```
#include<stdio.h>
 int main( )
 {
 int Mark_obt;
 char my_class;j
 printf("\n Enter Your Class:");
scanf("%c", &my_class);
 if (my_class!='T')
 {
printf("Mark_obt are more than 95");
 }
 else
{
 printf("Your Class is T");
}
return 0; }
```

b)Total Marks is more than 550 for all students whose class is 3A and 3B?

Ans :

```
#include<stdio.h>
  int main( )
  {
 char my_class[2];
 printf("\nEnter Your Class:");
scanf("%s", &my_class);
printf("my class is %s", my_class);
if ((strcmp(my_class, "3A") == 0)|| (strcmp(my_class, "3B") == 0))
{
 printf("Total Marks are more than 550");
}
else
 {
printf("Your Class is not 3A or 3B");
```

```
}
return 0;
}
```

4. Suppose the expression y=y*3*(x+y*2) is rewritten as

y*3;

y*=x+y*z

Ans : NO

Because:

1. Variable z is not present in first Expression. In first expression there is 2 in place of z

2. In second expression, a new variable is introduced ,Semicolon is not used due to unavailability of semicolon it includes compilation errors and program is not able to run.

5**. Identify unnecessary parenthesis in the following statements**?

a) ((x-(y/5)+z)%8)+25 **Ans: (x-y/5+z)%8+25**

b) ((z-k)*y)+a **Ans: (z-k)*y+a**

c) (a*b)+(-y/z) **Ans: a*b+(-y/z)**

WHAT WILL BE PRINTED IN THE FOLLOWING PROGRAMS :

```
#include<stdio.h>
 main ( )
 {
 int x,y;
 y=2;
  x= y+1;
 printf("%d %d\n",x,y);
 y=y+2;
 x=5;
 printf ("%d %d\n",x,y);
 }
```

Ans : 3 2

5 4

2.

```
#include<stdio.h>
main( )
{
int a, b;
a=6;
a=a+3;
```

```
    b= 4% a;
    printf("%d %d \n", a, b);
    }
```

Ans : **9 4**

3.
```
#include<stdio.h>
main( )
{
int a, c;
a=4;
c= a*a*a;
printf("%d%d%d\n", a,c,a*a);
}
```

Ans : **46416**

5.
```
#include<stdio.h>
 main( )
 {
 int rate, time, dist, junk;
 rate=7, time=3;
 junk=rate+time;
dist= rate * time;
printf("%d %d %d %d \n", rate, time, junk, dist);
}
```

Ans : **7 3 10 21**

SHORT ANSWER TYPE QUESTIONS:

1. What are delimiters?

Ans: A delimiter is a symbol that specifies the limit of basic elements of the program.C language sentences, labels are separated by special characters are called delimiters. Some of them are given below:

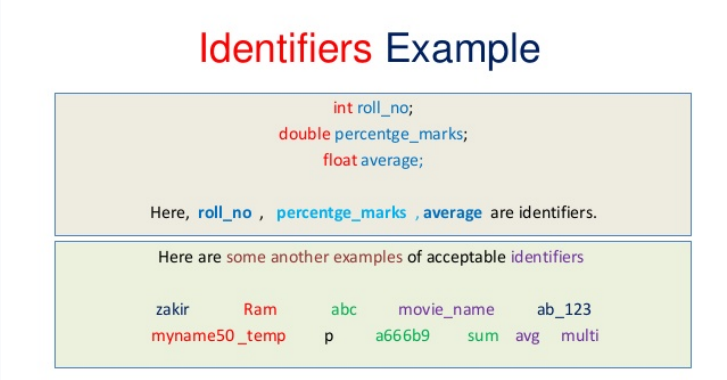
Delimiter	Symbol	Uses
Colon	:	Useful For Label
Semi-Colon	;	Terminate Statement
Parentheses	( )	Used in Expression and Function
Square Brackets	[ ]	Used for Array Declaration
Curly Braces	{ }	Scope of Statement
Hash	#	Pre-processor Directive
Comma	,	Variable Separator
Angle Brackets	< >	Header File

2. What is Identifiers?

Ans : **Identifiers** are names for entities in a **C** program, such as variables, arrays, functions, structures, unions and labels. An **identifier** can be composed only of uppercase, lowercase letters, underscore and digits, but should start only with an alphabet or an underscore.

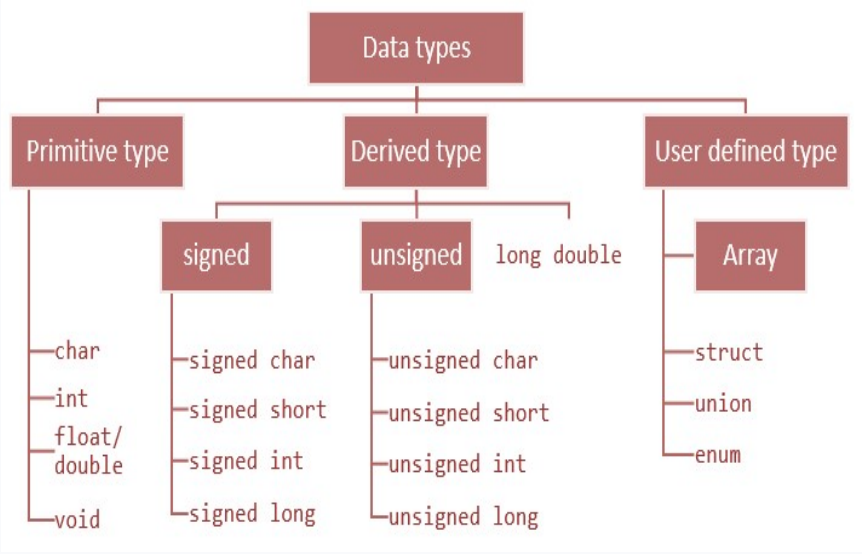
Rules for naming identifiers

- A valid identifier can have letters (both uppercase and lowercase letters), digits and underscores.
- The first letter of an identifier should be either a letter or an underscore.
- You cannot use keywords as identifiers.



3. What is Data Type?

Ans: A **data type** is a **type** of **data**. Some common **data types** include integers, floating point numbers, characters, strings, and arrays. **Data types** are **defined** as the **data** storage format that a **variable** can store a **data** to perform a specific operation. **Data types** are used to **define** a **variable** before to use in a program. Size of **variable**, constant and array are determined by **data types**.



C language supports 2 different types of data types:

1. **Primary data types**: These are fundamental data types in C namely integer (int), floating point (float), character (char) and void.
2. **Derived data types**: Derived data types are nothing but primary data types but a little twisted or grouped together like **array**, **structure**, **union** and **pointer**. These are discussed in details later.