C Programming Exam

Q.1 True or False: (10 Marks)

1) The C Language lacks the existence of Boolean data type.
2) The Structure can be considered as user defined data type.
3) We can use the keyword return inside any function even if the function is defined to return a void return data type.
4) All of the arithmetic operators are considered binary operators.
5) Global variables are automatically initialized in C.
6) Local variables for all the function in the program are stored on the stack.
7) Any Program in C must contain at least one function.
8) The type casting is a safe process and will never produce any loose in data.
9) Best location to declare a new Struct is outside of any function and before the main function.
10) printf and scanf are examples for two C Language Keywords .

Q.2 Choose the correct answer (Choose One Answer Only): (45 Marks)

1)
```
#include<stdio.h>
#include<conio.h>

void main(void)
{
int X = 3,Y,*Z;
Z = &X;
Y = ++*Z;
}
```

After Running this Code

a) X is equal to Y
b) X is greater than Y
c) X is less than Y
d) The Code will produce compilation errors
e) None of the above

2) **When you pass an array as an argument to a function, what is actually passed?**

1) all the addresses of the array elements
2) the values of the elements in the array
3) the address of the first element in the array
4) the number of elements in the array
5) None of the above

3)
```
#include<stdio.h>
#include<conio.h>
#include<alloc.h>
#include<string.h>

struct Ex
     {int i ;
     float j;
     char *s;
 };
void main(void)
{ struct Ex *p ;
 p= (struct Ex *)malloc (sizeof(struct Ex));
 p->s =(char *)malloc (char[20]);

 strcpy(p->s,"ABS");
 printf("%s",p->s);
}
```

Output From this Program :

a) ABS
b) Compilation Error
c) Logical Error
d) Type Casting Error
e) None of the above

4)
```
#include<stdio.h>
#include<conio.h>

int* Reverse (int *x)
{ int *ptr ;
 *ptr =  (-1*(*x));
  return ptr ;
}

void main(void)
{
int A = 5 +15 / 5;
A= *Reverse(&A);
printf("%d",A);
getch();
return 0;
}
```

Output from this Program:

a) -8
b) -4

c) -5
d) Compilation error
e) None of the above

5) Which of the following produce compilation error in C program?

1) Printing the value of uninitialized local variable.
2) Accessing an element of array with index bigger than allocated array size.
3) Printing Character variable using the %d format specifier with printf function
4) Not using a return keyword inside a function declared as (int Fun () {})
5) None of the above

6) How many lines will be printed by the following program code?

```
#include<stdio.h>
#include<conio.h>

void main (void)
{
 int count=0;
 int total=0;

 do
 {
  total = total +count;
  printf("count=%d, total=%d\n",count ++, total);
 }
 while (10>=count++);
}
```

1) 10
2) 5
3) 4
4) 6
5) 7

7) Which of the following keys will print True in the output?

```
#include<stdio.h>
#include<conio.h>

void main (void)
{
char ch ;

if (!getch())
{
 if (getch())
  printf ("True");
```

```
}
else
 printf ("False");
}
```

a. Enter Key
b. ESC Key
c. All Alphabetic Keys
d. All Function Keys (F1 .... F12)
e. None of the above

8)

```
#include<stdio.h>
#include<conio.h>

long Power (unsigned int x , unsigned int y)
{
 return x * Power (x,–y);
  if ( y == 1)        return 1;
}

void main (void)
{
 int a =3 , b =4 ;
 long Out = Power (a,b);
 printf("%l",Out);
}
```

1) 81
2) 12
3) 64
4) Linking Error
5) None of the above

9) To assign the Name attribute in the last element in the following array we can use which statement :

```
#include<stdio.h>
#include<conio.h>

struct Employee
{
 char  Name[100] ;
 int Age;
 int Salary;
};

void main (void)
{
 struct Employee *E = (struct Employee *) malloc (sizeof (struct Employee) * 5*2);
```

}

1) E[4]->Name ="ABC";
2) strcpy(E[10].Name,"ABC");
3) strcpy(*E[4]->Name,"ABC");
4) strcpy(&E[9].Name,"ABC");
5) strcpy(E[9].Name,"ABC");

10) which of the following are optional in C

1) else keyword with if condition
2) break keyword with the case keyword
3) all the three statements inside the for loop statement (for (; ;))
4) default key word with the switch keyword
5) all of the above

11) The value of X is:

```
#include<stdio.h>
#include<conio.h>

void main (void)
{
 int b=2;
 float a=1.99;
 int x=10;

 switch ((int)a)
 {
  case 0:
        x+=b;
  case 1:
        x+=b;
  case 2:
        x+=3;
 }
 printf("%d",x);
}
```

1) x=12
2) x=10
3) x=15
4) x=1.99
5) None of the above

12) Which of the following is the best declaration for an array of strings

1) string StrArr[3] = { "New" , "Save" , "Exit");

2) char StrArr [ ] [10] = { "New" , "Save" , "Exit"};
3) char *StrArr[3] = { "New" , "Save" , "Exit"};
4) char ** StrArr = { "New" , "Save" , "Exit"};
5) 2 and 3 and 4

13) What does this combination of statements do ?

```
#include <stdio.h>
#include <conio.h>
#define X 3
#define Y 6;

void main (void)
{
 int size=Y ;
 int i;
 for( i=X ; i<Y, i++)
   printf("%d,",i);
}
```

1) 5,6,7,8,9,10
2) 3,4,5,6,
3) 3,4,5,
4) Runtime Error
5) Compiler Error

14) Which of the following is a valid Array Declaration Statement :

1) int Arr [5];
2) int Arr [ ] = {1,2,3,4,5};
3) int *Arr = (int *) malloc (10);
4) 1 and 2
5) 1 and 2 and 3

15) What will be output if you will compile and execute the following C code?

```
#include <stdio.h>
```

```
#include <conio.h>
void main(void)
{
 int x = 1 ;
 printf ("Hello Loops: ");
 while ( x )
  while (--x)
   while (++x)
   {
    if ( x == 10 ) break ;
    printf("%d",x++);
   }
}
```

1) Compilation Error
2) Infinite loop
3) Hello Loops: 1 1 1 1 1 1 1 1 1 1
4) Hello Loops:
5) Hello Loops: 1 2 3 4 5 6 7 8 9 10

Q.3 Answer the following question: **(5 Marks)**

List the **Four possible ways** to return ***two*** values (Float Data Type) from a function
I need to write a function that will evaluate the Divide and Reminder Results for two input numbers

(The following is just a fraction of the function code)

[redacted] **MyFunction (float F1 , float F2** [redacted]
{
[redacted] **F1 / F2 ;**

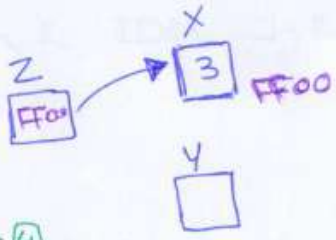
[redacted] **F1 % F2;**
}

Good Luck

ITI C Exam :-

* Choose

```
#include <Stdio.h>
#include <Conio.h>
Void main()
{ int X=3, Y, *Z;
  Z = &X;
  Y = ++ *Z;
}
```

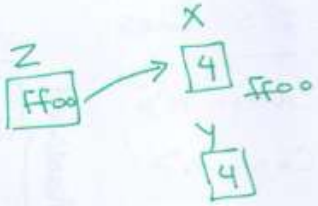


Y = ++(3) = 4

*Z = *Z + 1 = 4

وجا أن الـ Z بتشاور على X

يبقى قيمة الـ X هتتغير برضو وهتبقى 4



يبقى الإجابة (a) أنه Y = X .

Q4

```
#include<Stdio.h>
#include <Conio.h>
int* Reverse (int *x)
{ int *ptr;
  Ptr = X;
  *Ptr = (-1 * (*x));
  return ptr;
}
Void main()
{ int A= 5+15/5;
  A= *Reverse( &A);
  Printf("%d", A);
  getch();
  return 0;
}
```

إجابة السؤال ده هتكون non of the above

لأنه بالشكل ده هيطلع (run time error) Exception

لأنه الـ ptr مش معمولها initialize في الفانكشن ، يعني هيا مش عارفة هيا هتشاور على ايه وهتحط القيمة بتاعة الـ X فيه !

ولو عايزين البرنامج ده يبقى هيشتغل لازم نعمل initialize الـ ptr

- ونلاحظ اني قلت Ptr = X مش Ptr = &X

لأنه الـ X أصلاً هيا address لكن لو قلت &X يبقى أنا كده جبت الـ address بتاع Pointer X مش الـ address اللي بيشاور عليه .

This line after run will be

A = *ptr ;

↓

This is the result of function return.

Q5

الإجابة هتكون non of the above
لأنه رقم 1 مش هتطلع error هتطبع rubbish Value بس.
رقم 2 مش هيطلع ايرور ، هيطبع الرقم اللي في المكان ده في الكيودي بس.
رقم 3 مش هيطلع ايرور ، هيطبع الـ ASCII بتاع الـ character.
رقم 4 مش هتطلع error ← جربتها.

Q6

It will print 6 lines

```
#include <Stdio.h>
#include <Conio.h>
Void main ()
{
  int Count = 0;
  Int total = 0;
  do{
      total = total + Count;
      Printf (" Count = %d , total = %d ", Count++, total);
    } while (10>= Count ++);
}
```

at first Count=0, total=0

iteration 1:
- total = total + Count = 0+0 = 0
- Printf ⇒ Count=0, total=0 ⇒ Count=1 because of Count ++
- While (10 >= (1)++) True and Count = 2 because of ++

iteration 2:
- total = 0 + 2 = 2
- Printf ⇒ Count = 2, total=2 ⇒ Count = 3
- While (10 >= (3)++) True and Count 4

بيقى لاحظت في الـ While Condition
انني اول مرة قلت أو قارنت بين 10 و 1
اللي بعدها 10 ، 3
بيقى بعدها 10 ، 5
10 ، 7
10 ، 9
10 ، 11 ⇐ هيطلع من الـ loop ومش هينفذ تاني.
بيقى كده المفروض اللوب اتنفذ 5 مرات زيكم بما أنك do while مش while.
∴ هيا ٦ مرات

Q7

```
#include<stdio.h>
#include< Conio.h>
Void main()
{ Char ch;
  if(! getch())
  { if( getch())
        Printf("true");
  }else
    Printf("false");
}
```

الكل هيكون All function keys
لأنها من الـ extended keys.

Q 11

```
#include <stdio.h>
#include <Conio.h>

Void main(Void)
{ int b = 2;
  float a = 1.99;
  int x = 10;
  Switch ((int) a)  ⟹  Switch (1)
  {
    Case 0 :
        x += b;
    Case 1 :
        x += b;  ⟹  x = x + b ⟹ x = 10 + 2
    Case 2 :          x = 12
        x += 3;  ⟹  x = x + 3 ⟹ x = 12 + 3
  }                              x = 15
  Printf ("%d", x);
}
```

الإجابة هتكون أنه الـ X = 15 .

والـ Case2 اتنفذت برضو عادي مكانش في break في آخر Case1

Q13

```
#include <Stdio.h>
#include <Conio.h>
#define X 3
#define Y 6;

Void main()
{ int size = Y;
  int *i;
  for (i=X; i<Y , i++)   ⟸ Compilation error in this line
      Printf ("%d", ,i);
}
```

عادي لما نعوض بال Y الشكل هيبقى

for(~~int~~ i = 3, i<6 ; , i++)

وده غلط في for syntax .

Q14

الإجابة رقم 5 (أنه ال 3 صح في ال declaration)
ينفع أقول

```
int Arr[5];
```

or

```
int Arr[] = {1,2,3,4,5};
```

or

```
int *Arr = (int*) malloc(10);
```

Q15

```
#include<
#include<conio.h>
Void main(Void)
{ int x=1;
  Printf("Hello Loops:");
  While(x)
     While(--x)
        While(++x)
        {
          if(x==10) break;
          Printf("%d", x++);
        }
}
```

The output is Hello Loops :
وهيطلع من تاني while عشان هيطبع أي قيمة لـ x .

Q3 List the four possible ways to return 2 values from a function
I need to write a fun. that will evaluate the divide & the reminder results for two input numbers :

```
_____ MyFunction(float F1, float F2 _____
{
   ___ ___ F1/F2;
   _____ F1 % F2;
}
```

عندنا ٤ طرق :

1. use global variables
2. using Call by reference
3. using Arrays
4. using struct.