Chapter 10
Roll 2102024
Reg 10151

MULTIPLE CHOICE

10.1 (d) All of the above

10.2 (d) All of the above

10.3 (d) All of the above

10.4 (a) External

10.5 (d) Both 1 and 2

10.6 (c) A compiler error is generated for the mismatch.

10.7 (d) All of the above

REVIEW QUESTIONS

10.1
(a) True
(b) False
(c) False
(d) False
(e) True
(f) True
(g) False
(h) True
(i) True
(j) False
(k) False
(l) True
(m) True
(n) True
(o) False
(p) True
(q) True
(r) False
(s) True
(t) True

10.2
(a) actual parameters
(b) variable names
(c) function
(d) *
(e) int
(f) recursive
(g) local variable or automatic variable
(h) Scope
(i) static variable
(j) automatic

10.3 The main is a user defined function.

But it has some cases like every c file must have one main. And the program itself start executing from main.

10.4 Two types of function for passing parameter is calling by value or reference. For pass by reference I use it when I don't need to change the original value. Otherwise I use pass by reference.

10.5 Prototyping also known as function declaration which is a method for specifying the function. It allows the compiler to perform error checking and helps to define and call the function from anywhere in the file.

10.6(a) Actual and formal arguments: Actual arguments are used while calling a function and formal argument is used while defining a functions declaration,

(b) & operator and * operator: & operator is used to get the memory address of a variable. where * is used to get the value from a certain memory address.

(c) Global and local variables: Global variables are declared outside all functions and can be used from anywhere. On the other hand local variables can be used in a certain block or a function. They have a local scope.

(d) Automatic and static variables: Automatic variables are also known as local variables. They are used for temporary storage. On the other hand static variables retain their value between function ca

(e) Scope and visibility of variables: Scope refers to the region of a program where a variable is recognized. Where the visibility refers to whether it can be referenced from a specific location.

10.7 (a) Compiler error
(b) Compiler error
(c) Compiler error.
(d) Incorrect behavior.
(e) Compillation error.

10.8

(a) Invalid. Because parenthesis is used in the argument.

(b) Invalid. Semicolon missing.

(c) Invalid. Data type not specified.

(d) Invalid. Duplicate use of void.

(e) Invalid. Data type for one variable not specified.

(f) Invalid. No return type and arguments data type.

(g) Invalid. Address of b is not a variable.

10.9 (a) Invalid. Placing ; at the end not allowed

(b) Invalid. Arithmetic operation on argument.

(c) Invalid. Integers in the argument.

(d) Invalid. Wrong use of semicolon in the argument.

(e) Invalid. Data type not declared for y.

(f) No return type

(g) Invalid. Address can't be a variable.

10.10

(a) 5
(b) 4
(c) 3
(d) 0

10.11

(a) For int divide (int x, int y).

a) 5
b) 4
c) 1
d) 0

(b) For double divide (float x, float y):

a) 5.000000
b) 4.500000
c) 3.000000
d) 0.666667

10.12 Ans: 200 10000

10.13 Ans: 100

10.14 Ans: x = 3
y = 0

10.15 While calling a function we have to consider correct sytax, function name, parenthesis, argument, return value, scope and proper context like definition and declaration position.

10.16 While passing pointer variable we have to use * prefix in the formal argument and we must send the address in the actual parameter on function calling.

10.17 The rules to consider while passing array includes array size, array notation. We must pass the array as memory address of first element. And on the formal parameter we should use [] to receive.

10.18 Passing the gloabal variable to a function will create unexpected behavior like function will create it's own scope. This may lead to a much more complex problems.

DEBUGGING

10.1 (a) This function cannot return, as written in the definition. So return c won't work.

(b) we must return something from this function,

```
int abc (int a, int b)
{
    ....
    return a;
}
```

(c) Wrong return type. In the definition it is told to return int but returning double.

(d) correct

(e) It should return an integer. Not empty.

10.2 (a) Return type specifying is not required.

(b) Void in the argument list isn't required.

(c) We can't declare and send as argument.

(d) Valid.

(e) Valid.

INTERVIEW QUESTIONS

10.1 It is not possible to execute instruction after the main has ended.

10.2 Formal arguments are declared in function prototype or definition. On

the other hand actual parameters are the values passed to the function. It is used while calling the function.

10.3 Call by value is a mechanism where a copy of the variables are send. On the other hand, call by reference send the memory address of a variable.

10.4
```
int gcd (int a, int b)
{
    if (b == 0)
    {
        return a;
    }
    else
    {
        return gcd (b, a%b);
    }
}
```

10.5 Comma operator is used to seperate multiple expressions or variables in a statement.

10.6 To apply green color, we have to write,

```
printf ("\033[0;32m Hello World \033[0m");
```

10.7 The default return type of a function is int.