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46.5
Excellent

Bahir Dar Institute of Technology Faculty of Computing

Computer Programming Final Examination for 1st Year Students

Total marks: 50 Pts **Time given: 1:45 hrs.**

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I. Write true if the statement is correct or write false if it is incorrect (1/2 pt each)

False 1) Flow control statements are used to divert the execution path to another part of the program

False 2) It is always a must to write function prototype in c++.

True 3) A running program spends all of its time executing instructions or statements in that program

False 4) In C++, different functions can't have the same name

False 5) It is possible to have many main functions in c++

II. Choose the best answer and write the letter of your choice on the space provided (1.5 pts each)

A 1) The one which is true is
   A. In a for loop, the initialization expression is to be executed only once
   B. In switch statements, the default is executed even though the test case is evaluated to true
   C. Sometimes, it is possible to use key words in c++ as identifiers
   D. All
   E. None

B 2) In an array
   A. It is possible to have a mix of different data types
   B. It it possible to perform any arithmetic and logical operations provided that the data type is int
   C. Sometimes, indexes start from one
   D. All
   E. None

D c 3) Given the code below

```
#include <iostream>
using namespace std;
  int main(){
     char sex='M';
      switch(sex){
     case 'M':
     cout<<"You are male"
     case 'F':
     cout<<"You are female";
     default:
```

```
cout<<"Your sex is not determined";
 }
return 0;
}
```

The result of the above code is

A. You are male
B. You are female
C. Your sex is not determined
D. You are maleYou are femaleYour sex is not determined
E. None

D 4.) Given the code below

```
#include <iostream>
using namespace std;
int main(){
int i;
for (i=1; i<=10; i++){
if(i==6){continue;}
cout<<i;
}
```

When the above code is executed, the result will be

A. 12345678910
B. 123456
C. 12345
D. 1234578910
E. none

A 5.) Given the code below

```
#include <iostream>
using namespace std;
int age=30;
void main(){
int age =60;
cout<<::age;
return 0;
}
```

When the above code is executed, the result to be displayed on the monitor is

A. 30
B. 60
C. Both 30 and 60
D. None

B ⑥ There are two different ways to implement multi selections in C++ language. They ar

A. if-else and switch case
B. if-else if and switch case
C. else-if and case
D. None

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7. To perform one of the many operations selected based on a condition, which kind of statem
is be required?

A. Iterative
B. Selective
C. Either (A) or (B) can be used
D. None

8) The index of the last element of an array with N number of elements is

A. N
B. N + 1
C. N – 1
D. All
E. None

9) The correct syntax of declaring an array in c++ is

A. [array_size] data_type array _name;
B. array_name data_type [array_size];
C. data_type array_name [array_
D. data_type [array_size] array_

10) Variables declared inside the parenthesis of a function have _____ visibility.

A. Local
B. Global
C. Both local and global
D. Universal
E. None

11) The break statement is used to exit from a_____

A. do while
B. switch
C. for
D. all

12) "do while" loop is useful when we want that statement within the loop must be exec

A. Only once
B. At least once
C. More than once
D. None

13) If there is more than one statement in the block of for loop, which of the following placed at the beginning and the ending of the loop block?

A. Parentheses ()
B. Brackets [ ]
C. Braces { }
D. Arrows <>

14) Which of the following loop uses three things initialization, condition to terminate increasing the value of loop counter?

A. for
B. while
C. do while
D. switch

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15. Which of the following is the default program flow controls?
A. Sequence
B. Loop (iteration)
C. Selection (decision)
D. All of the above

16. What is the output of the following code fragments
```
int a=3, b=1, c;
switch (a)
 {
  case 1:
       c=++a;
       break;
  case 2:
       c=a+b;
       break;
  case 3:
       c=a-b;
       break;
 }
cout<<c;
```
A. 4
B. 5
C. 2
D. 3

17. What will be the output of the following code
```
void f(int i)
{
 i=i*5;
}
int main()
{
 int i=5;
 f(i);
 cout<<i<<endl;
 return 0;
}
```
A. 5
B. 25
C. 20
D. 10

18. How many times the word "programing" will print in the following program?
```
int main()
{
 int x=5;
 while(x>1)
   {
   cout<<" programming";
```


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```
}
return 0;
}
```

A. 4
B. 5
C. 0
D. An infinite number of tin
E. None

19. Among the following, the syntax that we use to access an array element is
A. arrayName[index],
B. arrayName(index),
C. dataTypeName arrayName [array size];
D. dataTypeName arrayNar
E. All

20. Which one of the following is correct function prototype?
A. float add(int x, y);
B. float add(int, int);
C. float add(x,y);
D. float add(int x=3,int y)
E. None

III. Output (1.5 pt each)

```
#include<iostream>
using namespace std;
void ageCalc( int & age){
   age = 18;
   cout<<"age="<<age<<endl;
}
int main(){
   int a=15;
   cout<<"a="<<a<<endl;
   ageCalc(a);
   cout<<"a="<<a<<endl;
return 0;
}
```

Output

```
a= 15
age=18
a=18
```

```
#include<iostream>
using namespace std;
int x=22;
void disp( int b){
   b=b*2;
   x=x*3;
   cout<<x<<endl<<b<<endl;
}
int main(){
   disp(5);
   disp(6);
return 0;
}
```

Output

```
66
10
132
20
```

IV. Write your answer for the following questions

1. Write a C++ program using if...else if condition which reads a mark of student and corresponding grade based on the following information. A>=85, B>=70, C>=6(F<45. (3pt)

```
#include<iostream>
using namespace std;
int main(){
int mark;
cout<<"Enter your mark to get corres
cin>>mark;
if(mark>=85 && mark<=100){
cout<<"A";
```

```
else if (mark >= 70 && mark <= 80){
  cout << "B";
}
else if (mark >= 60 && mark <= 70){
  cout << 'C';
}
else if (mark >= 45 && mark <= 60){
  Cout << 'D'; }
else{
  cout << 'F';
} return 0; }
```

2. Write function that compute and display the sum of numbers between 0 to 30 by using recursion function. (3pt)

```
#include <iostream>
using namespace std;
int add (int n){
  if (n==0)
    return 0;
  else
    return n+ add(n-1); }
  int main (){
    cout << add(30);
    return 0; }
```

(3)

3. Write a c++ function that will accept two numbers from the caller and return their product, and display the returned value to the screen. (3pt)

```
#include <iostream>
using namespace std;
int pro(int x, int y){
  return x*y;
}

int main (){
  int num1, num2;
  cout << "Enter two numbers to get their product"
  cin >> num1 >> num2;

  cout << pro(num1, num2);

  return 0;
}
```

(3)

4. Write a for loop that that stores the values from 0 to 10 in an integer array named myArray. (3pt)

```
#include <iostream>
using namespace std;
int main (){
int myArray[11];
for(int i=0; i<=10; i++){
myArray[i]=i;

return 0;
}
```

(3)

5. Write a while loop that displays the values stored in myArray in question No. 4 above. (

```
#include <iostream>
using namespace std;
int main (){
int i=0;
while(i<=10){
cout<<myArray[i]<<", ";
i++;
}
return 0;

}
```

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