OL Academy

CSC103

مراجعة امتحان المنتصف

المراجعة للامتحان 3 ساعات

حل أسئلة متعددة من امتحانات سابقة

اليوم الأحد

13/04/2025

من 07:00 عصرًا

إلى 10:00 مساءً

سجّل الآن .. المقاعد محدودة

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Chapter 1 – Numbering System

(1) The octal number $(45)_8$ is equivalent to the Decimal number:

(a) $(29)_{10}$ (b) $(37)_{10}$

(c) $(44)_{10}$ (d) $(49)_{10}$

(2) The octal number $(703)_8$ is equivalent to the Binary number:

(a) (111000011)2 (b) (101000111)2

(c) (011100000011)2 (d) (11111110111)2

(3) The number $(110010111010)_2$ is equivalent to the Hexa-decimal number:

(a) $(00CBA)_{16}$ (b) $((0ABC)_{16}$

(c) $(121110)_{16}$ (d) $(9B8)_{16}$

(4) The binary multiplication (product) of 1011 and 111 is:

(a) $(1010101)_2$ (b) $(10110010)_2$

(c) $(1001101)_2$ (d) $(1101001)_2$

(5) The binary number (101110001011100) is equivalent to the octal number:

(a) $(44632)_8$ (b) $(23644)_8$

(c) $(5757)_8$ (d) $(56134)_8$

(6) The Hexadecimal number (F4C2) is equivalent to the Binary number:

(a) $(1010101000101011)_2$ (b) $(1110001010100010)_2$

(c) $(0010101000101010)_2$ (d) $(1111010011000010)_2$

FlowChart

Draw a **FlowChart** for a program that calculates the estimated installment amount payable when buying a smart phone. The program will do the following:

(a) Prompts the user to enter from the keyboard the price of smart phone (price), down payment (payment), and payment period in months (period).
(b) Calculate the installment amount (iAmount) as follows:

$$\text{iAmount} = \begin{cases} \frac{(price+5)}{period} & if payment = 0 \\ (price - down\ payment)/\ period & if\ payment > 0 \end{cases}$$

(c) If Payment <0 display message "Error" otherwise, display the installment amount (iAmount).

Chapter 2 – Basic Elements of C++

(1) To save in the memory a student name, which of the following data types you will choose

(a) float
(b) char
(c) int
(d) string

(2) To save in the memory the number of students in a section, which of the following data types you will choose

(a) float
(b) char
(c) int
(d) string

(3) After finishing writing a C++ program, you decided to run the program. How many compile errors are allowed so the program can run:

(a) No errors
(b) One return error
(c) No capital error
(d) Unlimited

(4) Which of the following is an alternative data type to float:

(a) double
(b) int
(c) long
(d) string

(5) Which of the Statements are correct for defining 3 integer variable x,y and z:

(a) int x,y,z
(b) int x;y;x;
(c) int x,y,z;
(d) int x int y int z

(6) Which of the following is not a valid variable name declaration:

(a) string Student Name;
(b) string std13;
(c) string STD;
(d) string _stdentName;

(7) Which of the following is not a valid variable name:

(a) int number;
(b) float rate;
(c) int variable_count;
(d) int main();

(8) What is the output of the code in the box:

(a) 13

(b) 10

(c) 10.5

(d) 11

```
int x=2;
x *= 2 + 9/3.0;
x++;
x += 5/2;
cout<<x;
```

(9) What is the output of the code in the box:

(a) 1232346

(b) 3533524

(c) 2333412

(d) 3534624

```
int n=1, m=2, p=3;
n+=2;
m+=3;
cout << n << m << p;
p = ++n * ++m;
cout << n << m << p;
```

(10) What is the output of the code in the box:

(a) 12.5 4

(b) 12 4

(c) 0 4

(d) 12.5. 4.25

```
int x=0;
x=x*2+ 5/2.0 +10;
cout<<x<<" ";
int z=11%7 + 4/16;
cout<<z;
```

(11) What is the output of the code in the box:

(a) 8

(b) 9

(c) ++p

(d) Error

```
#include <iostream>
using namespace std;
int main() {
    const int p=8;
    p = p+1;
    cout<<p<<endl;

    return 0;
}
```

Chapter 3 – Input/Output

(1) What is the output of the code in the box:

(a) between++++more99

(b) +++++betweenmore99

(c) betweenmore99++

(d) right+betweenmore99

```
string str = "between";
int a = 99;
cout<<right<<setfill('+');
cout<<setw(12)<<str<<"more"<<
a<<endl;
```

(2) What is the output of the code in the box:

(a) ####100 and#31.4400 5.22

(b) ####100 and #31.4400 5.2200

(c) 100 and #31.4400 5.22####

(d) ####100#and#31.4400#5.22

```
int a=100;
double b=31.44;
cout<<"12345678912345678 9"<<
endl;
cout<<right<<setfill('#');
cout<<fixed<<showpoint;
cout<<setw(7)<<a<<"
and"<<setprecision(4)<<setw(
8)<<b<<" 5.22"<<endl;
```

Chapter 4 – Control Structures I (Selection)

(1) The value of x is 4 and y is 3.9, then the expression (x <10 && x==y)

(a) true (b) false;

(2) if n is negative and m is positive then the expression (n != m) evaluates:

(a) true (b) false;

(3) Which of the following is the Boolean operator for logical NOT?

(a) && (b) ||

(c) ? (d) !

(4) Evaluate the expression (true && (false ||true))

(a) true (b) false

(c) true and false (d) error

(5) Every if statemen must have a corresponding else.

(a) true (b) false

(6) What is the output of the code in the box:

(a) Win

(b) Win Win

(c) Win Win Win

(d) No output

```
int num=13;
if (num !=13)
    cout<<"Win ";
if (num %2 ==0)
    cout<<"Win ";
cout<<"Win ";
```

(7) What is the output of the following code, if the input for butter is 10:

(a) light

(b) heavy

(c) moderate

(d) heavy moderate

```
int butter;
cin>>butter;
switch(butter/2){
case 2: case 3:
   cout<<"light"; break;
case 6: case 5: case 4:
   cout<<"heavy"; break;
default:
   cout<<"moderate ";
}
```

(8) Convert the following **if else** statement into **switch** statement (Do not write main program)

```
if (type ==1)
   cout<<”Dashboard”;
else if (type ==2 || type ==3)
   cout<<”Transmission”;
else
   cout<<”Body control”;
```

(9) if the value of num is 5, What is missing in the code to only display “5 Points”:

(a) if
(b) while
(c) case
(d) break

```
switch(num){
case 5:
   cout<<”5 points”;
default:
   cout<<”No points “;
}
```

(10) What is the output of the following code:

(a) Under
(b) Over
(c) Under the limit.
(d) Over the limit.

```
int sum=14;
if (sum<20)
     cout<<"Under ";
else
    cout<<"Over ";
cout<<"the limit. ";
```

(11) What is the output of the following code:

(a) You win

(b) You lose

(c) The prize You win

(d) You lose the prize

```
int sum=21;
cout<<"The prize ";
if (sum !=20)
     cout<<"You win";
else
     cout<<"You lose";
```

(12) Which of the expression below will allow the switch statement to handle both capital letter 'H' and small letter 'h' and not only capital 'H' to display "Home".

(a) case 'H' : 'h':

(b) case 'H' || 'h':

(c) case 'H' && 'h'

(d) case'H' : case 'h'

```
char letter;
cin>>letter;
switch (letter){
    case 'H':
        cout<<"Home";
        break;
    case 'R':
        cout<<"Road";
        break;
     default:
         cout<<"No Address";
}
```

13- A homeowner wants to grow vegetables in the backyard of his house, therefore he wants to buy fertilizers and seeds. Write C++ program that will ask the user to enter the backyard area in square meters (float) and the fertilizer bag size (float) ad bag price (float).
The program will then calculate and display the number of bags needed and the total price according to the below formula:

$$\text{Number of bags} = \frac{backyard\ area}{2\ x\ bag\ size} + 1$$

$$\text{Total price} = \text{Number of bags x bag price}$$

Note: remove any decimal point value (fraction) that may result when calculating.

SAMPLE INPUT/OUTPUT

`Enter backyard area, Fertilizer bag size and price:`
`35 5 4.3`
`Number of bags =4`
`Total price = 17.2 BD`

14- Additive manufacturing is defined as the process of joining materials to make objects from 3D model data, usually layer upon layer. Write c++ program to asks the user to enter the Category (string) and cost(float) of manufacturing. The program will perform the following:

1. If the process is slow add 30% extra charges to cost.
2. If the process is fast discount 20% from the cost.

The process is categorized slow, normal or fast according to the category value on the below table.

If category	Then process is
Extrusion	Slow
Jetting	Slow
Powder_Fusion	Normal
Energy_Deposition	Normal
Lamination	Fast
Vat	Fast

3. Display the cost of manufacturing.

Chapter 5 - Control Structures II (Repetition)

(1) What is the output of the following code:

(a) 1 2 3 4 5 6
(b) 0 2 4 6 8
(c) 0 2 4
(d) 0 2 4 6

```
int x =0;
while (x<=6)
{
   cout<< x<<" ";
   x += 2;
}
cout<<endl;
```

(2) What condition should be used so that the code displays out the following:
1 2 3 4 5 6 7 8

(a) count <8
(b) count <9
(c) count+1<=8
(d) count <=9

```
int count=1;
while (          )
{
   cout<< count<<" ";
  ++count;
}
cout<<endl;
```

(3) After executing the code on the right what is the output?

(a) ADC
(b) ADCD
(c) AD
(d) A

```
char x = 'A';
while(x != 'D') {
  switch(x) {
    case 'A': cout<<x;
              x = 'D';
    case 'B': cout<<x;
              x = 'C';
              break;
    case 'C': cout<<x;
              x = 'D';
  }
}
```

(4) What is the output of the following code:

(a) 10 9 8 7

(b) 10 9 8

(c) 9 8 7

(d) None of these

```
bool found = false;
int i = 10;
while(i>0 && !found)
{
   cout<<i<<"\t";
   i--;
   if (i==7)
      found = true;
}
```

(5) Books can be self-published or can be published on Amazon. Write a C++ program that asks the user to enter the book **title** (string), publication **year** (int) and number of **pages** (int) for **43 books** and perform the following:

- for each book published in 2015 or after, calculate and display the cost of book publishing as follows:

Cost of book publishing = number of pages × 0.02 +1.3

- Calculate and display the total cost of published books since 2015.