| $1-9$ | 10 | 11 | 12 | 13 | 14 | 15 | 16 | $x x x$ | $x x x$ | $x x x$ | $x x x$ | $x x x$ | $x x x$ | TOT |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

University of Gaziantep, Department of
Student Name, Surname: * * * S A M P L E * * *
Duration 100 min.
Date/Time Student Id No

1. Which of the following variable names are illegal in C++ syntax?
I) integral II) integer III) _number1
IV) 1stMidterm v) Top_10
(a) I and IV
(b) III and IV
(c) II and IV
(d) IV only
(e) III, IV, and V
2. What is the value of $c$ in the following statement?
int $a=5, b=13$;
int $c=(a<b)$ ? $b / a: a / b$;
(a) 2
(b) 0
(c) 2.6
(d) 0.4
(e) 0.3846
3. What is the output of the following code fragment?
int $k=10$, t;
$\mathrm{t}=-\mathrm{k}--$;
cout $\ll \mathrm{k} \ll$ " " << t << endl;
(a) 910
(b) 9-10
(c) $-10-11$
(d) 9-11
(e) $-10-10$
4. What will be the output of the below code segment?
int $\mathrm{m}=0$;
do \{
$m=m-2$;
\} while $(\mathrm{m}>5)$;
cout << m;
(a) 0
(b) 2
(c) -2
(d) -5
(e) -7
5. if $x$ is negative in the following assignment double $y=$ sqrt(x);
then $\qquad$ is assigned to variable $y$;
6. What is the output of the following code segment?
int a;
a=3;
switch(a) \{
case 2: cout << "i"; break;
case 3: cout << "ii";
case 4: cout << "zz"; break;
default: cout << "iii";
\}
(a) i
(b) ii
(c) iiiii
(d) iizz
(e) $z z$
7. What is the value of $x$ after the execution of the below statements?
int $x=4$;
$x /=x-2$;
(a) 0
(b) -1
(c) 2
(d) 1
(e) 4
8. What is output of the following code segment?
```
int x = 4;
for(int i=0; i<4; i++){
    x += 2;
}
cout << x;
```

(a) 10
(b) 12
(c) 14
(d) 16
(e) 18
9. Write down the C++ equivalent of the following mathematical expression:

$$
K=\sqrt[6]{\frac{|a-b|}{\ln x^{2}}}
$$

| (10\%)[10]. <br> Write down the output of the program given right. | ```#include <iostream> using namespace std; int main() { double x=1.0; int k=5; while(k>0) { if ( log10(x)>2.0 ) { x = x/20; cout << x << endl; k--; } else x = x*100; }``` |
| :---: | :---: |

(10\%)[11].
Write down the output of the program given right.

```
#include <iostream>
using namespace std;
int main (){
    int c1=1, c2=c1;
    int c3 = (c1>c2) ? 1:0;
    while(c3<15) {
        c3 = c1 + c2;
        c1 = c2;
        c2 = c3;
        cout << c1 << " " << c3 << endl;
    }
}
```

(10\%)[12]. For the flow chart given below, write a

(10\%)[13].
(a) By using a for loop, write a $\mathrm{C}_{++}$program that evaluates sum of the first N terms of the following infinite series:
$\sin (\pi)+2 \sin \left(\frac{\pi}{2}\right)+3 \sin \left(\frac{\pi}{3}\right)+4 \sin \left(\frac{\pi}{4}\right)+\cdots$
where N in the input from keyboard.
(b) What is the output of your program for $N=5$ ?
$\square$
(05\%)[14]. Convert following for loop into a while loop

```
int s = 0, i;
for(i = 0; i < n; i++){
        s += 2*i;
    }
```

(05\%)[15]. Rewrite the following switch block using else if statement

```
switch(octalDigit){
    case 0: cout << "zero "; break;
    case 1: cout << "one "; break;
    case 3: cout << "three"; break;
    case 5: cout << "five "; break;
    case 6: cout << "six "; break;
    case 7: cout << "seven"; break;
    default: cout << "out of range";
```

(15\%)[16]. Write a program that calculates the factorial of the integer input N (i.e. $\mathrm{N}!=1 \cdot 2 \cdot 3 \cdot \ldots \cdot \mathrm{~N}$ ). The program must output an error message if the input is negative. For this case the program should not attempt to compute the factorial and stop the execution.

