

Student Name:

IT Foundation using C#

EXAM 1

Instructor: Vallejo

Note: The test is worth **100 points**. **Show all your work** for each problem. No partial credit will be given if no work is shown for each answer. Read the entire description to each question before answering the question. **Good Luck!**

True / False (2 points each)

- | | |
|--|--|
| 1. A block ({ }) can contain more than one statement. | <i>Circle One</i>
<u>TRUE</u> / FALSE |
| 2. Every program must have a function called Main. | <u>TRUE</u> / FALSE |
| 3. The type int is signed. | <u>TRUE</u> / FALSE |
| 4. Multi-line comments are started by //. | <u>TRUE</u> / FALSE |
| 5. Variables are used only for storing constants. | TRUE / <u>FALSE</u> |
| 6. All statements are terminated by a comma. | TRUE / <u>FALSE</u> |
| 7. A variable name may begin with an underscore (_). | TRUE / <u>FALSE</u> |
| 8. \n is used by WriteLine to go to the next new line. | TRUE / <u>FALSE</u> |
| 9. Upper- and lower-case letters are significant for names. | <u>TRUE</u> / FALSE |
| 10. The type char is Unicode (2 bytes). | <u>TRUE</u> / FALSE |

Multiple Choice (3 points each)

11. Which feature will execute a block of code at least once:
- A. **while**
 - B. **for**
 - C. **do-while**
 - D. **foreach**
12. An **int** variable occupies:
- A. One byte
 - B. 9 bits (1 for parity)
 - C. Four bytes
 - D. 7 bits (for unsigned)
13. What function is used to read in a string:
- A. Console.WriteLine
 - B. Console.Read
 - C. Console.Write
 - D. Console.ReadLine

14. Which is an INVALID statement:
- A. $x = x / -1;$
 - B. $y = y + 2$**
 - C. $z = z + z;$
 - D. $t += t;$
15. What does $X == Y$ mean?
- A. X is assigned to Y
 - B. Y is assigned to X
 - C. X is compared to Y**
 - D. None of the above
16. Which of the following is NOT a logical operator:
- A. ;**
 - B. \parallel
 - C. $\&\&$
 - D. $!$
17. Which is an invalid type of Field:
- A. readonly
 - B. get**
 - C. const
 - D. None of the above
18. **break** is used to:
- A. Exit a program
 - B. Exit stage right
 - C. Exit a function
 - D. Exit a loop**
19. C# ignores:
- A. Whitespace**
 - B. Braces
 - C. Commas
 - D. Semicolons
20. What is the significance of **while (true)**
- A. It is an invalid expression
 - B. It is an infinite trip
 - C. It is an infinite statement**
 - D. It will never stop

21. What is the result of the following statement for $x = 4$? (5 points)

```
result = x + x++;  
result = --x + x;
```

8
7

22. What are the basic arithmetic operations? Show the operational signs. (5 points)

+ plus * multiply
- minus / divide

23. What are the basic conditional operations (less than, equality, etc.)?

What are the basic logical operations? (5 points)

< less than == equal to & & and
> greater than != not equal to || or

24. Check if the following if expressions below result in TRUE or FALSE? (5 points)

A.

```
usCnt = 10; usSum = 10;  
if (usSum++ == usCnt)  
{  
    etc...  
}
```

TRUE

FALSE

B.

```
usCnt = 10; usSum = 10;  
if (usSum == ++usCnt)  
{  
    etc...  
}
```

TRUE

FALSE

25. What is the value of usSum after the following code segment? (5 points)

```
usSum = 10; usCnt = 2;  
switch (usCnt)  
{  
    case 3:  
    {  
        usSum = usSum + 2;  
        break;  
    }  
    default:  
    {  
        break;  
    }  
    case 2:  
    {  
        usSum = usSum * 3;  
        goto case 3;  
    }  
}
```

usSum = 32

26. **Circle** the COMPILER/SYNTAX errors in this program (5 points)

```
static void Main( )  
{  
    int    iSum0;  
    int    iCnt=Sum0 iValue; iTotat;  
    char   chChar = 0a0;  
  
    iSum = chChar  
    ;  
    while (iSum 100);  
    {  
        iSum = iSum + 1;  
    }  
    ;  
}
```

27. Given the following program what will the last value of usCnt be when the program completes execution? Is there anything unusual about this program? What does it show and what do you conclude from this? (10 points)

```
using System;  
class Test  
{  
    static void Main( )  
    {  
        uint  usCnt;  
        uint  usSum = 0;  
  
        for (usCnt = 10; usCnt >= 0; usCnt--)  
        {  
            Console.WriteLine("{0}",usCnt);  
            usSum = usSum + usCnt;  
        }  
    }  
}
```

usCnt = -1 but usCnt is unsigned so either it will never exit the for loop or it will abend.

28. What will the following program display? (10 points)

```
using System;
class Test
{
    static void Main( )
    {
        int iX;
        int iY;

        iX = 15321;
        while (iX != 0)
        {
            iY = iX % 10;
            Console.Write(iY);
            iX /= 10;
        }
        Console.WriteLine();
    }
}
```

Display will be 12351

29. We have a stack object (10 points):

- What is while () statement do? *Execute code as long as stack is not empty.*
- What is IsEmpty? *Method to check if stack is empty.*
- What is Pop()? *Method to pop the top value of the stack.*
- What is {0}? *Placeholder for popped value.*
- What is the code below going to do? *Write out all values of the stack.*

```
while (!stack.IsEmpty)
{
    Console.WriteLine("Popping {0}", stack.Pop());
}
```

30. What is the difference between a "Class" and a "Struct" in C#? (10 points)

A struct does not have a constructor. It is just a memory placeholder for values