



**UNIVERSITI KUALA LUMPUR**  
**MALAYSIAN INSTITUTE OF INFORMATION TECHNOLOGY**

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**FINAL EXAMINATION**  
**JANUARY 2016 SEMESTER**

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**COURSE CODE** : ITD 10903  
**COURSE TITLE** : C# PROGRAMMING  
**PROGRAMME LEVEL** : DIPLOMA  
**DATE** : 28 MAY 2016  
**TIME** : 9.00 am – 11.30 am  
**DURATION** : 2 ½ HOURS

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**INSTRUCTIONS TO CANDIDATES**

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1. Please read the instructions given in the question paper CAREFULLY.
2. This question paper is printed on both sides of the paper.
3. This question paper consists of TWO (2) sections; Section A and Section B.
4. Answer ALL questions in Section A and Section B.
5. Please write your answers on the OMR answer script and answer booklet provided.
6. Answer all questions in English language ONLY.

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THERE ARE 11 PAGES OF QUESTIONS, EXCLUDING THIS PAGE.

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**SECTION A (Total: 25 marks)****INSTRUCTION: Answer ALL questions.****Please use the objective answer sheet provided**

1. Omitting a semicolon is an example of a \_\_\_\_\_.
  - A. semantic violation
  - B. syntax error
  - C. run-time error
  - D. logic error
  
2. A standard convention used by programmers for naming constants is to \_\_\_\_\_.
  - A. use camel case
  - B. begin the first character with a lower case characters and use upper case for the rest of the identifier
  - C. use uppercase letters for the identifier
  - D. use Pascal case
  
3. Observe the program segment below. How many times would the loop body be executed if `counter++` is changed to `counter+=5`?

```
int counter = 0;
while (counter < 100)
{
    Console.WriteLine(counter);
    counter++;
}
```

- A. 19
- B. 20
- C. 99
- D. 100

4. The fully qualified call to the method that allows the user to input a single character is:
- A. Console.System.Read()
  - B. System.Console.WriteLine()
  - C. Console.System.Write()
  - D. System.Console.ReadLine()
5. Which of the following is **not** a modifier in C#?
- A. const
  - B. private
  - C. public
  - D. static
6. What is the top .NET class that everything is derived from?
- A. Object
  - B. System.Net
  - C. System.Object
  - D. System.Root
7. To create an array of 4 exam scores that range in value from 0 to 100, the following statement could be made \_\_\_\_.
- A. `int examScore = new int[3];`
  - B. `int [ ] examScore = new int[4];`
  - C. `int [ ] examScore = new int[3];`
  - D. `int examScore[4] = new int[ ];`
8. The index is also sometimes referred to as the \_\_\_\_ of the array.
- A. value
  - B. element
  - C. subscript
  - D. superscript
9. The "is a" relationship is associated with :
- A. Interfaces
  - B. encapsulation
  - C. inheritance
  - D. polymorphism

10. A class from which an object **cannot** be instantiated could be a(n) :
- A. base class
  - B. abstract class
  - C. derived class
  - D. all of the above
11. Which of the following is a **VALID** identifier
- A. string
  - B. number 1
  - C. numberOfStudent
  - D. 7number
12. Functions or modules found in other languages are similar to \_\_\_\_\_ in C#.
- A. modifiers
  - B. parameters
  - C. arguments
  - D. methods
13. Which one is placed in a method heading to indicate no value will be returned?
- A. void
  - B. public
  - C. static
  - D. return
14. Loops are needed in programming languages :
- A. to facilitate sequential processing of data
  - B. to enable a variable to be analyzed for additional processing
  - C. to process files stored on hard drives
  - D. to allow statements to be repeated
15. The \_\_\_\_\_ operator represents the logical **AND**.
- A. ++
  - B. ||
  - C. &&
  - D. @@

16. The value contained within the square brackets that is used to indicate the length of the array must be a(n) :
- A. class
  - B. integer
  - C. string
  - D. double
17. An array is a list of data items that \_\_\_\_\_.
- A. all have the different type
  - B. all have different names
  - C. all have the same type
  - D. all are integers
18. To be considered a true object-oriented language, designers of the language must provide support for :
- A. properties
  - B. objects
  - C. inheritance
  - D. IDEs
19. Packaging data attributes and behaviors into a single unit so that the implementation details can be hidden describes an object-oriented feature called:
- A. encapsulation
  - B. inheritance
  - C. abstraction
  - D. polymorphism
20. \_\_\_\_\_ are unexpected conditions that happen very infrequently.
- A. Bugs
  - B. Conditions
  - C. Streams
  - D. Exceptions

21. The number 777 is an example of a \_\_\_\_\_ type.
- A. bool
  - B. integral
  - C. floating-point
  - D. Decimal
22. Given the following class definition, what would be the valid `set` properties?
- ```
public class Student() {  
    private double gpa;  
}
```
- A. `set { value = gpa ;}`
  - B. `set { value = gpa };`
  - C. `set { gpa = value ;}`
  - D. `set { gpa = value };`
23. Which of the following modifiers is the most restrictive?
- A. `private`
  - B. `static`
  - C. `public`
  - D. `protected`
24. The symbol (`=`) is :
- A. The operator used to test for equality
  - B. Used for comparing two items
  - C. Used as part of an assignment statement
  - D. Considered a logical compound operator
25. How many times is the loop body of the `while` statement executed?
- A. once
  - B. never
  - C. two times
  - D. three times

**SECTION B (Total: 75 marks)****INSTRUCTION: Answer ALL questions.****Question 1**

(a) Write a valid C# statement(s) for each of the following conditions

- i. Write a C# declaration of variable `score` with data type `double` (2 marks)
- ii. Write the statement to read input from variable `score` in i. (2 marks)
- iii. Write the statement to display the variable `score` from ii. (2 marks)
- iv. A method header `FindSquareRoot` with `int` number parameter (2 marks)
- v. A default constructor from `Vegetable` class. (2 marks)

(b) There are **FIVE (5)** syntax errors in the following program. Identify the errors.

```
1 public class Magazine {
2     private String title = "Rescued by C#";
3     protect double price;
4     public String Title {
5         get { return title };
6         set { title = value ;}
7     }
8     public static void main(string []args)
9     {
10        Magazine galaxie = news Magazine();
11        Console.Write ("The magazine title is {1}",galaxie.Title);
12    }
13 }
```

(5 marks)

- (c) Convert the following program segment into a valid C# statement using while loop and switch - case selection

```
class StudentScore {
    static void Main (string [] args){

        char grade ;
        int totalA = 0;
        int totalB = 0;
        int totalF = 0;

        for(int student = 1;student <= 100;student ++)
        {
            Console.Write("Please enter grade :");
            grade = char.Parse(Console.ReadLine());
            if( grade == 'A')
                totalA = totalA + 1;
            else if( grade == 'B')
                totalB = totalB + 1;
            else if( grade == 'F')
                totalF = totalF + 1;
            else
                Console.Write("Invalid input");
        }
        Console.Write("Total A student is {0}",totalA);
        Console.Write("Total B student is {0}",totalB);
        Console.Write("Total F student is {0}",totalF);
    }
}
```

(10 marks)

**[TOTAL : 25 marks]**



**Question 2**

(a) Write the **TWO** ways to initialize an array of three values.

(4 marks)

(b) Rewrite the following **for** statement using a **foreach** statement:

```
int[] anArray = new int[] {2, 4, 6, 8, 10, 12};  
for (int i = 0; i < anArray.Length(); i++)  
    Console.WriteLine("{0}", anArray[i]);
```

(4 marks)

(c) Display the output produced by the following code:

```
int[] anArray = new int[4];  
for (int i = 0 ; i < anArray.Length ; i++)  
{  
    anArray[i] = 5 * i;  
    Console.Write ("{0}, ", anArray[i]);  
}
```

(2 marks)

(d) Trace the output produced by the following code when:

- (i)  $x = 2$  and  $y = A$
- (ii)  $x = 2$  and  $y = 0$
- (iii)  $x = 6$  and  $y = 3$

```
int x, y, z;
try
{
    Console.Write("Enter value x and y");
    x = int.Parse(Console.ReadLine());
    y = int.Parse(Console.ReadLine());
    z = x / y;
    Console.WriteLine("Result {0}", z);
}
catch(FormatException ex)
{
    Console.WriteLine("FormatException occurred");
}
catch(DivideByZeroException ex)
{
    Console.WriteLine("DivideByZeroException occurred");
}
finally
{
    Console.WriteLine("Finally Block");
}
```

(6 marks)

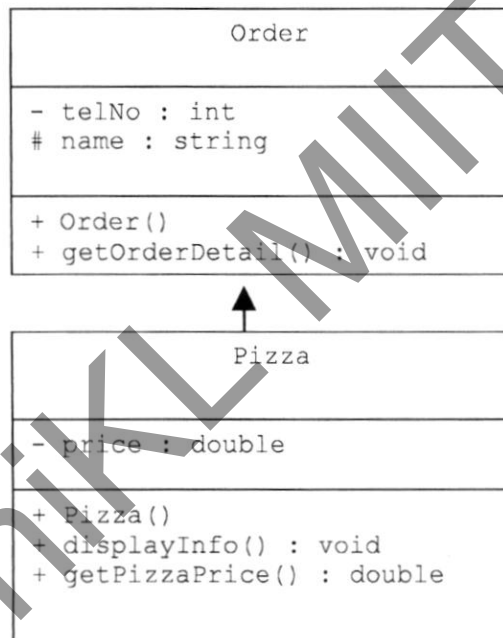
- (e) Declare, create and initialize an array to store colour names that are Red, Blue, Yellow, Green and Magenta. Write a `for` statement to display the contents of the array. Use `try` and `catch` to check if the program will raise `IndexOutOfRangeException`.

(9 marks)

[TOTAL : 25 marks]

**Question 3**

Inheritance allows you to create general class and then define specialized classes that have access to the members of the general class. These new specialized classes can extend functionality by adding their own new unique data and behaviors. Answer the following questions based on the UML Class diagram.



**Figure 1.0 UML Class Diagram**

- (a) Order is a base class with two datafields: private int telNo and protected string name. Write the class definition based on the above UML by declaring the datafields and a constructor without parameter.

(2 marks)

- (b) Next, add to the class definition Order class above, the definition of property for the private data field.

(3 marks)

- (c) Next, add to the class definition `Order` class above, the definition of method `getOrderDetail()` that will get values for the telephone number and the name of the customer, from the keyboard using `Console.ReadLine()` statement.
- (6 marks)
- (d) `Pizza` is a subclass of the superclass `Order` that has method `displayInfo()` and method `getPizzaPrice()`. Write the subclass definition with a constructor without parameter and method `displayInfo()`.
- (3 marks)
- (e) Next, add to the subclass `Pizza` definition above, the definition of method `getPizzaPrice()` that will get value for the pizza price from the keyboard using `Console.ReadLine()` statement, then method `getPizzaPrice()` returned the value that was read.
- (5 marks)
- (f) In the main method, instantiate `Pizza` object and then invoke method `getOrderDetail()`. Then invoke method `displayInfo()`. Next, display the price of `Pizza` object by invoking method `getPizzaPrice()`.

(6 marks)

[TOTAL : 25 marks]

END OF QUESTION