

ZIMBABWE EZEKIEL GUTI UNIVERSITY



FACULTY OF SCIENCE, TECHNOLOGY, AGRICULTURE AND FOOD SYSTEMS DEVELOPMENT

DEPARTMENT OF INFORMATION SYSTEMS

EXAMINATION PAPER

COURSE CODE:	DIS113
COURSE TITLE:	INTRODUCTION TO PROGRAMMING USING C#
SPECIAL REQUIREMENTS:	NONE
LEVEL:	1.1
EXAM DURATION:	3 hours
DATE:	10 JUN 2026

Instructions

- (I) Answer any five questions
- (II) Number your answers accordingly.
- (III) Start answering each question on a new page

Question 1

- a) The scope of a variable describes the portion of a program where the variable is visible and can be used. Discuss the various types of variable scope that can be found in C# [6 marks]
- b) Distinguish between passing parameters by value and by reference [4 marks]
- c) Explain with an example how a function that returns a value can be called by a main program [10 marks]

Question 2

- a) Comments are used to document programs. State and explain the two types of comments used in C# [4 marks]
- b) Write a C# program that calculates the sum of the numbers between 0 and 20 [8 marks]
- c) Use a simple example to demonstrate that the **do...while** loop always executes at least once. [4 marks]
- d) State the rules that must be followed when naming variables in C# [4 marks]

Question 3

- a) State any **four** characteristics of the C# programming language that make it a good choice for developing applications. [4 marks]
- b) Compare and contrast the **for loop** and the **while loop** [4 marks]
- c) Explain the advantages of breaking down a large program into smaller subprograms [4 marks]
- d) Write a C# program that calculates the area of a circle after reading the radius through the keyboard. Use the value of the constant **pi = 3.14** [8 marks]

Question 4

- a) The **do...while** loop executes at least once regardless of the result of the condition. Explain why. [4 marks]
- b) Let A = 6, and B = 10. Evaluate the following expression as executed by a C# compiler:

$$2B(B - 8)/(5*A+B)$$

[2 marks]

- c) Consider the following code which sums the first 10 numbers including zero:

```
void static Main(int[] args){  
    int i = 0, sum = 0;  
  
    while( 0 < 10){  
        sum = sum + i;  
    }  
    Console.WriteLine(sum);  
}
```

Explain why the code will not give the correct sum of the first 10 numbers.

[6 marks]

- d) Compare between the **while** loop and the **do...while** loop as used in programming

[8 marks]

Question 5

- a) Explain it is important to state the data type when declaring variables in C#. [6 marks]
- b) Discuss the characteristics of the array data structure as used in C# [6 marks]
- c) Compare and contrast the **while** loop and the **do...while** loop in C#. [4 marks]
- d) State four characteristics of C# that make it a preferable language for developing modern applications [4 marks]

Questions 6

- a) Programs written in a language like C# need to be converted to machine format. Briefly explain two ways that code can be used to convert programming code to machine format. [4 marks]

- b) State with examples the different types of comments found in C#
[6 marks]
- c) What is the index of the Nth element in an array with N elements?
[2 marks]
- d) Discuss the rules of using parameters in defining and using parameters in programming
[8 marks]

END

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