



MANICALAND STATE UNIVERSITY OF APPLIED SCIENCES

FACULTY OF ENGINEERING, APPLIED SCIENCES AND TECHNOLOGY

DEPARTMENT: COMPUTER SCIENCE AND INFORMATION SYSTEMS

MODULE: VISUAL PROGRAMMING

CODE: INSY214

SESSIONAL EXAMINATIONS
OCTOBER-2023

DURATION: 3 HOURS

EXAMINER: MR T.S MUWANI

INSTRUCTIONS

1. Answer **ALL** questions in Section A
2. Answer Any **three (3)** questions in Section B
3. Start a new question on a fresh page
4. Total marks 100

Additional material(s): None

SECTION A

Question 1

- a) The .Net framework consists of an enormous library of codes used by the client languages, such as C#. Explain any five components of the .Net framework. [10 marks]
- b) Show the output of the implementation of the rectangle class shown below. [6 marks]

```
using System;
using System.Collections.Generic;
using System.Linq;
using System.Text;
using System.Threading.Tasks;

namespace ImplementaionOfRectangleClass
{
    class Rectangle
    {
        // member variables
        double length;
        double width;
        public void Acceptdetails()
        {
            length = 4.5;
            width = 3.5;
        }
        public double GetArea()
        {
            return length * width;
        }
        public void Display()
        {
            Console.WriteLine("Length: {0}", length);
            Console.WriteLine("Width: {0}", width);
            Console.WriteLine("Area: {0}", GetArea());
        }
    }
    class Program
    {
        static void Main(string[] args)
        {
            Rectangle r = new Rectangle();
            r.Acceptdetails();
            r.Display();
            Console.ReadLine();
        }
    }
}
```

- c) Outline the three rules for naming an identifier in the C# language. [3 marks]
 d) Below is a list of the operators, separated into categories. Fill in the missing gaps. [5 marks]

Category	Operators
-----	-, +, *, /, %, ++, --
logical	-----
binary	-----
comparison	==, !=, >, <, >=, <=
-----	=, +=, -=, *=, /=, %=, &=, =, ^=, <<=, >>=
-----	(type), as, is, typeof, sizeof

- e) Explain the following terms in programming:
 i. Declaring a method [2 mark]
 ii. Implementing a method [2 mark]
 iii. Method call [2 mark]
- f) Define modifiers and explain the four access modifiers used in C# programming. [10 marks]

SECTION B

Question 2

Write a program that takes three points (x1, y1), (x2, y2), and (x3, y3) from the user, and the program will check whether or not all three points fall on one straight line. [20 marks]

Question 3

Write a program that takes a character from the user and determines whether the character entered is a capital letter, a small case letter, a digit, or a special symbol. [20 marks]

Question 4

Write a program using a switch statement that takes one value from the user, asks about the type of conversion, and then performs a conversion depending on the type of conversion. If the user enters:

- I → convert from inches to centimeters.
- G → convert from gallons to liters.
- M → convert from mile to kilometer.
- P → convert from pound to kilogram.

Given that:

1 cm is equal is 0.3037 inch

1 gallon=3.78 liters

1 kilometer = 1.60 miles

1 kilogram = 0.453 pounds

If the user enters any other character, then show a proper message.

[20 marks]

Question 5

In a company, worker efficiency is determined on the basis of the time required for a worker to complete a specific job. If the time taken by the worker is between 2 and 3 hours, then the worker is said to be highly efficient. If the time required by the worker is 3–4 hours, then the worker is ordered to increase their speed. If the time taken is 4–5 hours, then the worker is given training to improve his speed, and if the time taken by the worker is more than 5 hours, then the worker must leave the company. If the time taken by the worker is input through the keyboard, then find the efficiency of the worker.

[20 marks]

END OF EXAMINATION