DUT DURBAN UNIVERSITY OF TECHNOLOGY

FACULTY OF ACCOUNTING & INFORMATICS
DEPARTMENT OF INFORMATION TECHNOLOGY

2016: Semester 1
MAIN EXAM REVISION

INSTRUCTIONAL PROGRAMME:	DIP: APPLICATIONS DEVELOPMENT ND: INFORMATION TECHNOLOGY
INSTRUCTIONAL OFFERING:	APPLICATIONS DEVELOPMENT 1A/DEVELOPMENT SOFTWARE 1 (MODULE 1)
SUBJECT CODE:	APDA101/DSFW112
DATE:	BEFORE 10 JUNE 2016
DURATION:	2 HOURS
TIME:	ANYTIME
TOTAL MARKS:	100
NUMBER OF PAGES:	8 (INCLUDING COVER)
EXAMINER:	L. LINGWATI
MODERATOR:	S. FOOLCHAND

INSTRUCTIONS/REQUIREMENTS: -

1. ANSWER ALL QUESTIONS ACCORDINGLY
2. IT IS IN YOUR BEST INTEREST TO WRITE LEGIBLY AND SET OUT YOUR WORK CORRECTLY.

Question 1 **[7 Marks]**

MCQ

1.1 Consider 5 student marks entered into the program represented by the C# code below and these marks are entered in the following order **40, 20, 55, 27, 50**. What will be the output of this program?

```
int StudentMark = 0;
            int K = 0;
            while (K < 5 && StudentMark <= 50)
            {
                Console.WriteLine("Enter student mark: ");
                StudentMark = Convert.ToInt16(Console.ReadLine());
                Console.WriteLine(StudentMark);
                K++;

            }
 Console.ReadLine();
```

A. 45,20,27, 50, 55
B. 45, 20, 55
C. 45, 20,50
D. Error: Use of logical operator && not allowed in a while loop

1.2 What will be the output of the following segment of C# code?

```
for (int i = 0; i <= 10; i+=3)
      {
                Console.Write(i + " ");
      }
Console.ReadLine();
```

A. 0 3 6 9
B. 3 6 9
C. 0 3 6 9 10
D. Error due to the update part of the for loop

1.3 Arrays store data in _____

A. elements
B. vectors
C. matrices
D. square variables

1.4 If A is an array of 5 integers, which of the following is the correct way to increase its size to 10 elements?

A. int [ ] A =new int [5];
int [ ] A =new int [10];
B. int [ ] A = int [5];
int [ ] A = int [10];
C. int [ ] A =new int [5];
A.Length=10;
D. int [ ] A =new int [5];
A =new int [10];

1.5 You want to initialize all of the elements of a double array a to the same value equal to 1.5. What could you write? Assume that the array has been correctly initialized.

A. for(int i=1; i<a.Length; i++) a[i] = 1.5;
B. for(int i=0; i<=a.length; i++) a[i] = 1.5;
C. for(int i=0; i<a.Length; i++) a[i] = 1.5;
D. for(int i=0; i<a.length+1; i++) a[i] = 1.5;

1.6 Consider the following segment of code:

```
int[] x = {5,6,7,8,9};
int[] y = x;
y[2] = 10;
```

What is the value of x[2]?
A. 6
B. 7
C. 10
D. 8

1.7 Consider the following piece of code:

```
int i;
for(i=0; i<10; i++)
{
// some code that doesn't modify i
}
Console.WriteLine("i="+i); //Line A
```

What is printed by the statement on line A?
A. i=0
B. i=9
C. i=10
D. i=11

Question 2 **[40 Marks]**

This question is about a shirts' inventory management system. On stock arrival, each category is captured into the system by its name, the stock quantity per category and the cost price per shirt. The system then needs to compute the cost price per shirt category, to assist the operations manager with confirmation of the prices reflected on the suppliers' invoices. The mark-up percentage is used to determine the selling price of each shirt per category. Therefore, mark-up is the difference between the cost and the selling price, i.e. you increase the cost price by a certain percentage to get the selling price

The C# program for the above described scenario is intended to meet the operation manager's requirements by accomplishing the following tasks:

NB: Please label all your C# code with the exact question number, i.e. 2.1 must label all the relevant code that this particular question section asks for, etc. Unlabelled C# code may not be marked accordingly.

2.1 Write C# code to declare an array to store the following types of shirts; Formal, Chinese Collar and T-Shirts [3]

2.2 Write C# code to declare and define arrays for quantities, cost prices, mark-up percentage and the selling prices for the shirt categories that were identified in 2.1 above [3]

2.3 Write C# code to populate the quantities, cost prices and the mark-up percentages arrays by prompting relevant user input. Use a while loop structure to achieve this functionality. [13]

2.4 Write C# code to populate the selling prices array by using the relevant arrays as you compute the relevant selling prices. Use a for loop structure to achieve this functionality and make sure that your C# code also confirms that the selling price is being calculated for the right category of shirts. [11]

2.5 Write C# code to achieve the output as shown in Figure 1 below. You may use a looping structure of your choice. [10]

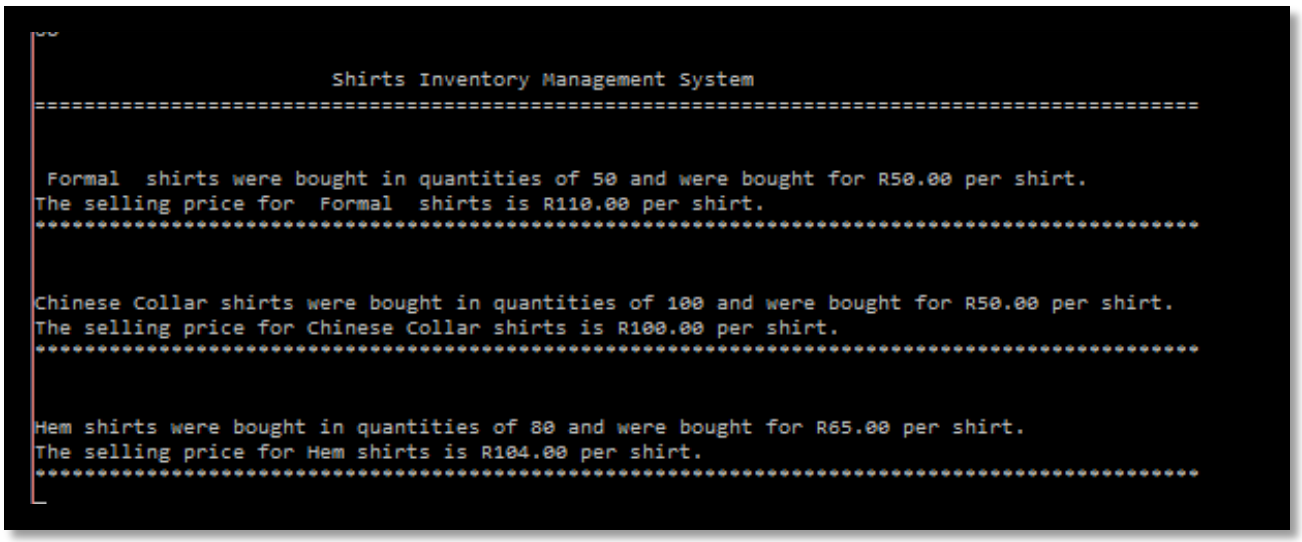

Figure 2.1 The shirts' inventory management system program output

Question 3 **[39 Marks]**

DUT Research Television (DUTRTV) boasts a number of channels inclusive of the **Channel 1A. Channel 1A** presenters are actively involved in the production of shows that cover topics on Mobile and Web APPS. The end product of their shows is a video that gets uploaded on YouTube in order to attract advert revenues for DUT. Presenters are paid a basic wage after the month that the video has been on the Internet. As a result, the number of hits that the video attracted will affect their final wage as shown in Table 3.1 below:

Number of hits	Wage increment
0	0%
1-100	5%
100-1000	15%
1000+	30%

Table 3.1 YouTube hits' effect on presenters' basic wages

You are required to develop a C#.Net Console Application that will assist the channel's management to process the videos' attracted hits in order to determine the presenters' final wages.

NB: Please label all your C# code with the exact question number, i.e. 3.1 must label all the relevant code that a particular question section asks for etc. Unlabelled C# code may not be marked accordingly.

3.1 Declare all the necessary variables for the C# Console application described above [4]

3.2 Write C# code to create a method called **readDataFromUser()** to read user input from the keyboard into the respective variables that you declared in 3.1 above. This method must pass all the necessary parameters accordingly [6]

3.3 Write C# code to create a method called **calcPresenterWage()** to calculate and return the presenter's net wage, using the relevant variables and the information in Table 3.1 above. [10]

3.4 Write C# code to create a method called **displayPresenterRecord()** in order to display all the necessary information about a presenter, their video and their payments in a professional user friendly manner [10]

3.5 Write C# code to invoke/call all or the necessary methods inside the **Main()** method [9]

Question 4

Draw a tracing table for the following program. The text file DPs.txt contains the following values; **49; 40;67;90;** [14]

```
…….
using System.IO;
namespace ETextFiles
{
class Program
{
static void Main(string[] args)
{
int DP;
int finalMark;
int ExamMark;
int numPassed;
string i;
 string o;
 StreamReader r;
StreamWriter w;
 string fileLine;
 i = "C:\\MyTextFiles\\Events\\DPs.txt";                    // 1
  o = "C:\\MyTextFiles\\Events\\FinalMarks.txt";            // 2
 r = new StreamReader(i);                                   // 3
  w = new StreamWriter(o);                                  // 4
fileLine  = r.ReadLine();                                   // 5
 finalMark  = 0;                                            // 6
numPassed=0;                                                // 7
 while (fileLine != null)                                   // 8
 {
DP = System.Convert.ToInt32(fileLine);                      // 9
Console.WriteLine ("Enter exam mark for :" + DP + "% DP"); // 10
ExamMark= Covert.ToInt32(Console.ReadLine());              //11
finalMark= (DP *0.4) + (ExamMark * 0.6)                     // 12
w.WriteLine("DP " + (DP) + "EM " + (ExamMark) + "FM " + finalMark); // 13
 if ((finalMark > 44) & (finalMark <50))                    // /14
 {
        w.WriteLine("Supplementary Granted" );              //15
}
else if ((finalMark > 49) & (finalMark <75))                //16
{
w.WriteLine("Pass" );                                       //17
numPassed ++;                                               //18
}

else if ((finalMark > 74)                                   //19
```

```
{
        w.WriteLine("Pass with Distinction" );          //20
numPassed ++;                                           //21
}
else
{
        w.WriteLine("Fail" );                           //22
}
fileLine  = r.ReadLine();                               //23

 }
w.WriteLine(" Number of passes are: " , numPassed);     //24
r.Close();                                               //25
w.Close();                                              // 26
}
 }
}
```