

LOCATION: SWANSEA

LLEOLIAD: ABERTAWE

LEVEL 4

LEFEL 4

EXAMINATION PERIOD
MAY 2019

CYFNOD ARHOLIADAU
MAI 2019

MODULE CODE: ACCA4017
SOFTWARE DEVELOPMENT

TIME: 2 HOURS

ANSWER ALL QUESTIONS

NOTE: IN-CLASS TEST, TIME/DATE TO BE ARRANGED BY LECTURER

Equipment or materials required – Computers with Visual Studio installed

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Signed	Reka Ragupathy
Date	07-05-2019

ANSWER ALL QUESTIONS

1. a) Which variable type would be most suitable to store each of the following values?

3.142 single / float / double ✓
123 integer ✓
Jim string ✓
79.6 single / float / double ✓
a string ✓
-34.52 float ✓

[1 mark each - 6 marks total]

1 b) What errors are present in the following program to calculate the area of a triangle?

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

```
namespace ExamQ1b
```

```
{
```

```
    class Program
```

```
    {
```

```
        static void Main(string[] args)
```

```
        {
```

```
            Console.WriteLine("Area of Triangle");
```

```
            Console.Read("Enter base length");
```

```
            double b = double.Parse(Console.ReadLine());
```

```
            Console.Write("Enter base height");
```

```
            double h = double.Parse(Console.ReadLine());
```

```
            double area = 0;  
            area = b * h * 0.5;
```

```
            Console.WriteLine("Area of triangle is {0}.", area.ToString("0.00"));
```

```
            Console.ReadLine(); //pause
```

```
        }
```

```
    }
```

```
}
```

Console.WriteLine
need to declare the variable area

bracket is missing

missing

0 is missing inside the bracket.

[5 marks]

1 c) How many iterations do the following loops have?

i)

```
for (int index=0; index<12; index++)
{
    Console.WriteLine(index);
}
```

..12.. ✓

ii)

```
int index=1;
while(index<6)
{
    Console.WriteLine(index);
    index = index + 1;
}
```

.....5 ✓

4

[4 marks]

1. d) What is the value of the integer variable total after the following code is executed?

```
int total=1;
for (x=0; x<7; x++)
{
    total=total+x;
    if(x == 4)
    {
        total=0;
    }
}
```

Handwritten calculations: $2+4+7+11+16+22+29=05$, $1+1+2+2+4+3+7+4+11+5=16$, $16+6=22$, $22+7=29$, $0+5=5$, 29

Handwritten notes: $16+6=22$, $22+7=29$, $0+5=5$, 29

Handwritten marks: X, ||, 0

[3 marks]

1 e) Given the following program:

```
void main()
{
    int x = 3;
    if( x .... )
    {
        Console.WriteLine("x does not exceed 3");
    }
    .....(x....)
    {
        Console.WriteLine("x exceeds 5" );
    }
    else
    {
        Console.WriteLine ("x is " + x );
    }
}
```

i) Write the code you would use to test x in the first condition:

if (x <= 3) [1 mark] ✓

ii) Write the code you would use to test x in the second condition x:

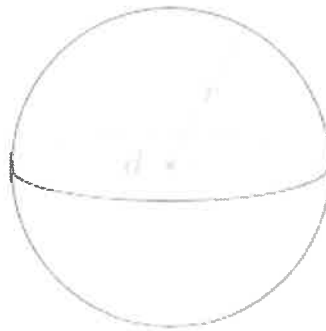
else if (x > 5) [1 mark] ✓

[20 marks total for Question 1]

2. Calculating the surface area of a sphere

The surface area of a sphere is calculated using the formula:

$$A = 4\pi r^2$$



Task:

Write a program to calculate the ^{area} volume using the above formula displaying the answer in a suitable message and showing value to 2 decimal places.

Allow the user to enter the measurement for r . You may set PI as 3.142

[10 marks total for Question 2] ✓

3. Using arrays

Task:

Prompt the user to enter 5 temperatures into an array (in Celsius).

After the temperatures have been entered, print each of the values on the screen using a loop.

After this, convert the five temperatures to Fahrenheit and print them on the screen to two decimal places.

Formula: $Fahrenheit = (Celsius * 9/5) + 32$

[15 marks total for Question 3]

33.8
37.8

4. Using Array Search Pattern

Ask the user to enter 8 names.

Ask the user to enter a search name.

Search the previously entered names for the search name.

Either display a message "Found It" or a message "Failed to find it".

[15 marks total for Question 4]

Diwedd/End


```

1  using System;
2
3  namespace SphereArea
4  {
5      //REKA RAGUPATHY
6      class Program
7      {
8          static void Main(string[] args)
9          {
10             Console.WriteLine("This is a program to calculate the surface area
11             of a sphere!");
12             Console.WriteLine();
13
14             double result = 0;
15             double pi = 3.142;
16             double radius = 0;
17
18             bool OK = false;
19             while (!OK)
20             {
21                 Console.Write("Please enter the radius: ");
22                 OK = double.TryParse(Console.ReadLine(), out radius);
23                 if (!OK)
24                 {
25                     Console.WriteLine("Invalid number!");
26                 }
27             }
28
29             Console.WriteLine();
30             result = 4 * pi * (radius * radius);
31             Console.WriteLine("The surface area of a sphere is {0}.",
32             result.ToString("0.00"));
33
34
35
36             Console.ReadLine(); //pause
37         }
38     }
39 }
40

```

Constants 1

Variable names 3

Formula 4

O/P 2

10


```

1  using System;
2
3  namespace ArrayTemperature
4  {
5      class Program
6      {
7          //REKA RAGUPATHY
8          static void Main(string[] args)
9          {
10             double[] temperature = new double[5]; ✓
11             double celsius = 0;
12             double fahrenheit = 0;
13
14             for (int i = 0; i < temperature.Length; i++)
15             {
16                 Console.WriteLine("Please enter the temperature in Celsius: ");
17                 temperature[i] = double.Parse(Console.ReadLine()); ✓
18             }
19
20             for (int i = 0 ; i < 5; i++) ✓
21             {
22                 Console.WriteLine(temperature[i]); ✓
23             }
24
25
26
27
28             for (int i = 0; i < temperature.Length; i++)
29             {
30                 Console.WriteLine("The temperature in Fahrenheit is {0}.",
31                     fahrenheit.ToString("0.00"));
32                 fahrenheit = (celsius * (9 / 5)) + 32;
33             }
34
35
36
37
38
39
40
41             Console.ReadLine(); //pause
42         }
43     }
44 }
45

```

Printing out
result before
you calculate
it.

loops 2 & logic inside
final loop in array.
arrays 5
2dp 2
Conversion 4

✓

13


```

1  using System;
2
3  namespace ArraySearch
4  {
5      class Program
6      {
7          //REKA RAGUPATHY
8          static void Main(string[] args)
9          {
10             string[] names = new string[8];
11
12             Console.WriteLine("Please enter 8 names: ");
13             for (int i = 0; i < names.Length; i++)
14             {
15                 names[i] = Console.ReadLine();
16             }
17
18             Console.WriteLine();
19
20             Console.Write("Who are you looking for? ");
21             string who = Console.ReadLine();
22             if (names.Contains(who))
23             {
24                 Console.WriteLine("Found it :-) !", who, names.Count);
25             }
26             else
27             {
28                 Console.WriteLine("Failed to find it :-(!", who);
29             }
30
31
32
33
34
35
36
37
38
39
40             Console.ReadLine(); //pause
41         }
42     }
43 }
44

```

- include prompt?

ok - but pre-built starter rather than loop.

?

?

Data types 2 ✓
 arrays 2
 Search 3 - ~~not~~ using in built functions rather than logic
 One message 3
 Overd code 1

11

