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PAPER FOR MIKE/TIM'S STUDENTS

NAME: ..Cieran.....Hughes.....

COURSE.....Applied.....Computing.....

LOCATION: SWANSEA

LLEOLIAD: ABERTAWE

LEVEL 4

LEFEL 4

**EXAMINATION PERIOD
MAY 2019**

**CYFNOD ARHOLIADAU
MAI 2019**

**MODULE CODE: ACCA4017
SOFTWARE DEVELOPMENT**

TIME: 2 HOURS

NOTE: IN-CLASS TEST, WEDNESDAY MAY 15th 2019 AM

Equipment or materials required – Computers with Visual Studio installed

Adnoddau neu ddefnyddiau sydd eu hangen – Cyfrifiraduron gyda Visual Studio

This is an open-book test, you may consult notes and/or Moodle.

ANSWER ALL QUESTIONS

Question 1 – write on the paper.

Question 2, 3 and 4 – write your programs using Visual Studio and upload your answers to Moodle at the end of the test.

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

3.142	float
123	integer
Jim	String
79.6	float
a	char
-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?

```
#include <string>
#include <iostream>
#include <sstream>
```

```
using namespace std;
```

```
int main(int argc, char *argv[])
{
```

```
    stringstream stream;
    string input;
    int base;
    int height;
    int total;
```

```
    cout << "Enter base: " << endl;
    getline(cout, input);
    stream.str(input);
    stream >> base;
    stream.clear();
```

```
    cout << "Enter height : " << endl;
    stream.str(input);
    stream >> height;
    stream.clear();
```

```
    total = 0.5f * base * height;
    cout << "The area of the triangle is " << ;
    return 0;
```

```
}
```

[5 marks]

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

i)

```
for (index=0; index<12; index++)
{
    cout << index << endl;
}
```

....12.....

ii)

```
index=1;
while(index<6)
{
    cout << index << endl;
    index = index + 1;
}
```

....5.....

[4 marks]

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

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

11.....

[3 marks]

Cycle	x	total	=
1	0	1 + 0	1
2	1	1 + 1	2
3	2	2 + 2	4
4	3	4 + 3	7
5	4	7 + 4	Ø
6	5	0 + 5	5
7	6	5 + 6	11

1 e) Given the following program:

```
void main()
{
    int x = 3;
    if( x > 3 )
    {
        cout << "x does not exceed 3" << endl;
    }
    .....(x.....)
    {
        cout << "x exceeds 5" << endl;
    }
    else
    {
        cout << "x is " << x << endl;
    }
}
```

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

~~< 3~~ <= 3 [1 mark]

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

@50 if (x > 5) [1 mark]

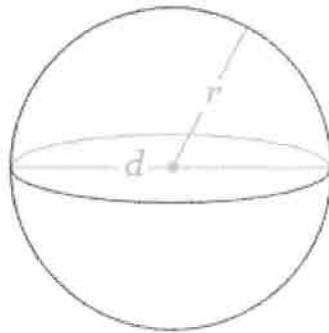
0.5

[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:

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



1 user enter R ✓
2 work out A ✓
3 Show result. ✓

Task:

Area

Write a program to calculate the ~~volume~~ using the above formula.

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).

1 Enter 5 temp ✓
2 output Loop ✓
3 convert
4 output

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]

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".

1 Enter names
2 Enter name search
3 Display ✓

[15 marks total for Question 4]

