

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

Question 1 – write on the paper.

ANSWER ALL QUESTIONS

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

*Equipment or materials required – Computers with Visual Studio installed
Adnoddau neu ddefnyddiau sydd eu hangen – Cyfrifiraduron gyda Visual Studio*

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

TIME: 2 HOURS

**MODULE CODE: ACCA4017
SOFTWARE DEVELOPMENT**

**CYFNOD ARHOLIADAU
MAY 2019**

**EXAMINATION PERIOD
MAY 2019**

LEVEL 4

LEVEL 4

LLEOLIAD: ABERTAW

LOCATION: SWANSEA

NAME: Bartosz Galuszka
COURSE: Computer Games Development

**PAPER FOR MIKE/TIM'S
STUDENTS**

**Prysgol Cymru
Y Drindod Dewi Sant
University of Wales
Trinity Saint David**



[5 marks]

```

using namespace std;

int main(int argc, char *argv[])
{
    stringstream stream;
    string input;
    int base;
    int height;
    int total;

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

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

    total = 0.5f * base * height; // the total should be converted into float or double
    cout << "The area of the triangle is " << endl;
    cout << total;
    return 0;
}
    
```

Handwritten notes and corrections:

- Red arrow pointing to `0.5f`: `0.5f` should be converted into float or double
- Red arrow pointing to `getline`: `getline` (cin, input);
- Red arrow pointing to `stream.str(input)`: `stream.str(input)`; // should be cin
- Red arrow pointing to `int base`: `int base` miss of a "!"
- Red arrow pointing to `int height`: `int height`
- Red arrow pointing to `int total`: `int total`

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

[1 mark each - 6 marks total]

3.142	double	
123	int	
Jim	string	
79.6	float	
a	char	
-34.52	float	

Handwritten corrections and marks:

- Red checkmark under `double`
- Red checkmark under `int`
- Red checkmark under `string`
- Red checkmark under `float`
- Red checkmark under `char`
- Red checkmark under `float`

Red number 6 written next to the table.

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]

3 ✓

1 e) Given the following program:

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

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

$\text{if}(x < 3)$

[1 mark]

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

$\text{if}(x > 3)$

[1 mark]

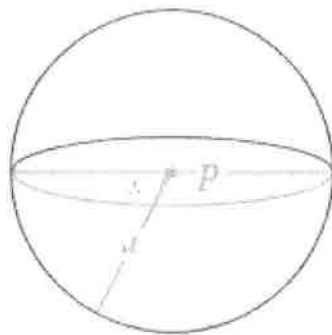
[20 marks total for Question 1]

✓

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 ~~volume~~ ^{area} using the above formula.

Allow the user to enter the measurement for r . You may set π 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]

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

