GCSE

4342/01

S16-4342-01

COMPUTER SCIENCE

UNIT 2: Solving Problems Using Computers
Question Paper

A.M. WEDNESDAY, 15 June 2016

2 hours

INSTRUCTIONS TO CANDIDATES

You will need a computer with a functional copy of Greenfoot pre-installed.

Carry out **all** tasks and make sure that you check your work carefully to ensure that the work you produce is accurate and correct.

It is important that you work independently from other candidates and make sure that what you hand in is your own unaided work.

Save your work regularly.

INFORMATION FOR CANDIDATES

The total mark available for this unit is **30**.

The quality of written communication will be assessed in task **3**.

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Answer **Task 1**, **Task 2** *and* **Task 3**.

Task 1 [6]

A first attempt at producing an HTML webpage to advertise an online photo editing service is shown below.

My Photo Edit

Online photo editing for free!

Need to crop, resize, or add a border to your photo? We can help! Need to adjust the colour, brightness, contrast or sharpness? Upload your photo now for easy access to all our online tools.

Click the link below to find out more:

www.myphotoedit.co.uk

The webpage was then improved using various HTML tags to provide the formatting shown below.

My Photo Edit

*Online photo editing for **free**!*

Need to crop, resize, or add a border to your photo? We can help! Need to adjust the colour, brightness, contrast or sharpness? Upload your photo now for easy access to all our online tools.

Click the link below to find out more:

www.myphotoedit.co.uk

Open the file *MyPhotoEdit.txt* using a basic text editor. Insert the required HTML tags that would be needed to display the formatting shown in the improved webpage. Save your completed work as FinalMyPhotoEdit.txt

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Task 2 [9]

An algorithm is required to calculate the total, average, highest and lowest value of a set of numbers, between 1 and 10.

Using a basic text editor, write an algorithm, which:

- inputs how many numbers are to be entered;
- inputs the numbers to be used;
- outputs the total of all the numbers;
- outputs the average of all the numbers;
- outputs the highest number entered;
- outputs the lowest number entered.

A partial example of the **input** and output of the algorithm is shown below.

Please enter how many numbers are to be entered: ***3***

Enter number: ***6***

Enter number: ***7***

Enter number: ***2***

Total: 15

Average: 5

Highest: 7

Lowest: 2

Save your completed algorithm as Algorithm.txt

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Task 3 [15]

(a) Open the WJECChase scenario in Greenfoot.

(b) Populate the world with a **cat**, a **mouse hole** and at least two **mouse** objects.

(c) Edit the **mouse** so that mice turn and move randomly.

(d) Edit the program code to make the **cat** move in the direction of the arrow keys when pressed.

(e) Edit the **cat** so that it "catches" a **mouse** when they collide (removes the **mouse** from the world).

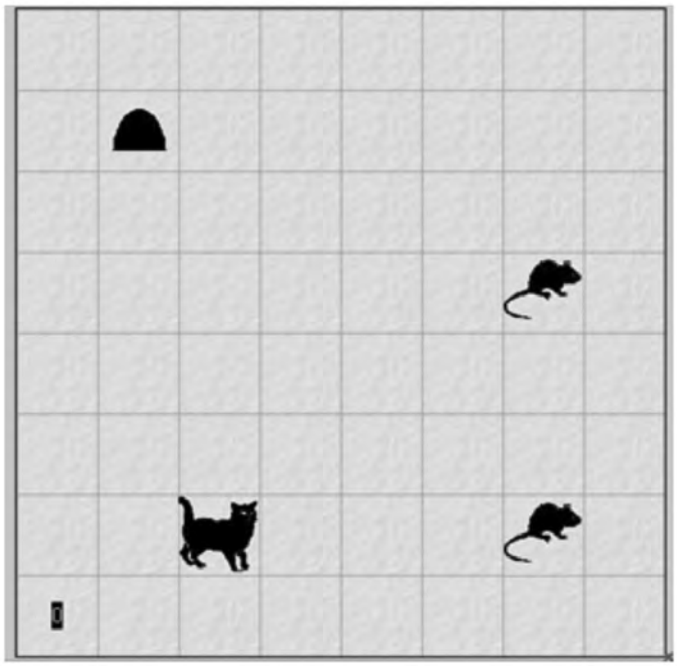
(f) Add a sound which will play every time the **cat** "catches" a **mouse**.

(g) Add a counter and edit the **cat** code so that the **counter** displays how many mice have been caught.

(h) Edit the **mouse** so that it "escapes" from the world if it collides with the **mouse hole** (removes the **mouse** from the world).

(i) Edit the **mouse** code and the **counter** code if necessary so that the **counter** loses a point (1 point is deducted) if the **mouse** "escapes".

(j) Save your completed world as FinalWJECChase



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