The questions on this worksheet have been taken from the OCR GCSE Computer Science Specimen Paper 2

6-A-Day – Computer Science GCSE (p2.6-2016)

Q1

Willow has created a hangman program that uses a file to store the words the program can select from. A sample of this data is shown in **Fig. 3**.

Fig. 3

crime	bait	fright	victory	nymph	loose

(a) Show the stages of a bubble sort when applied to data shown in **Fig. 3**.

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[4]

Q2

(b) A second sample of data is shown in **Fig. 4**.

Fig. 4

amber	house	kick	moose	orange	range	tent	wind	zebra

Show the stages of a binary search to find the word 'zebra' when applied to the data shown in **Fig. 4**.

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[4]

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Q3

The area of a circle is calculated using the formula $\pi \times r^2$, where π is equal to 3.142 and r is the radius.

Finn has written a program to allow a user to enter the radius of a circle as a whole number, between 1 and 30, and output the area of the circle.

```
01    int radius = 0
02    real area = 0.0
03    input radius
04    if radius < 1 OR radius > 30 then
05    print ('Sorry, that radius is invalid')
06    else
07    area = 3.142 * (radius ^ 2)
08    print (area)
09    end if
```

(a) Explain, using examples from the program, **two** ways Finn can improve the maintainability of the program.

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[6]

Q4

(b) Identify **two** variables used in the program.

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[2]

Q5

(c) **(i)** Identify **one** item in the program that could have been written as a constant.

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[1]

(ii) Give **one** reason why you have identified this item as a constant.

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[1]

Q6

(d) Finn uses an IDE (Integrated Development Environment) to write his programs. Identify **two** features of an IDE that Finn might use.

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[2]