6-A-Day – Computer Science GCSE (47)

Q1

Joseph is an author and programmer, and he needs to estimate how many pages his new book will have.

Each page has an average of 300 words. Each chapter starts with a chapter title page.
The number of pages is estimated by;
- dividing the number of words by 300
- ignoring the decimal part of the division
- adding the number of chapters to this total.

Joseph uses the algorithm below to estimate the number of pages, but his algorithm does not give the correct result.

```
01  INPUT numberOfWords
02  INPUT numberOfChapters
03  CONST wordsPerPage = 300
04  numberOfPages = RoundDown(numberOfWords / wordsPerPage)
05  numberOfPages = numberOfWords + numberOfChapters
06  OUTPUT numberOfPages
```

Joseph has used a `RoundDown` function to remove the decimal part of the division, e.g. `RoundDown(6.2)` would return 6, `RoundDown(7.8)` would return 7.

There is an error in line `05` of the algorithm.

Write a corrected line of code to replace line `05`.

.... **[1]**

Q2

Identify the most appropriate data type for the following variable `numberOfWords`. Give a reason for your choice.

Data type ....

Reason ....
[2]

Q3

Joseph is changing his algorithm and needs to store the name and price of his book in new variables. State the most appropriate data type(s) for these variables.

Name ....

Price ....
[2]

Q4	Joseph is using an Integrated Development Environment (IDE) to produce the program. **(f)** One tool in an IDE that Joseph uses is a translator. Describe **two** additional tools in an IDE that Joseph could use to help him produce his program. Tool 1 name: .... Tool 1 description: .... Tool 2 name: .... Tool 2 description: .... **[4]**
Q5	Joseph's IDE allows him to use both a compiler and an interpreter. Describe how Joseph could make use of a compiler and an interpreter when producing his program. Compiler: .... Interpreter: .... **[4]**
Q6	Explain how reducing the number of colours in an image can reduce its file size. .... **[2]**