Complete the missing parts of the table below (5 marks)

Data type	Description	Example
	A number with no decimal part	42
Real		3.14
	For variables that store either true or false	False
Character		'F'
String	A group of characters	

```
Line No.  Algorithm

1         word ← USER INPUT
2         newWord ← ""
3         FOR i ← 1 TO LEN(word)
4                 ascii ← CHAR_TO_CODE(word[i]) + 3
5                 IF ascii > 122 THEN
6                         ascii ← ascii - 26
7                 END IF
8                 newWord ← newWord + CODE_TO_CHAR(ascii)
9         END FOR
10        OUTPUT newWord
```

Pseudocode example 1

On what line does assignment first occur? _____ (1 mark)

On what line does selection first occur? _____ (1 mark)

On what line does iteration first occur? _____ (1 mark)

Complete the trace table below if the user enters "oxen" as the word in pseudocode example 1.

word	newWord	i	ascii	OUTPUT

What is the purpose of the pseudocode example 1 algorithm on the previous page? (3 marks)

Leyla is a photographer who shoots weddings. She charges £125 per hour for her services plus a travel fee of £10 for every 25 miles or part thereof she has to travel. That means for a booking 55 miles away it would be £30 as it is more than 2 full lots of 25 miles. Write an algorithm that will allow Leyla to enter the number of hours of a booking and the distance to the booking and have it calculate a total price.
(5 marks)

Explain what boundary testing is and give an example of a boundary test that would be needed for the photographers cost algorithm in the previous question. (2 marks)

Write an algorithm that will keep asking the user to answer the question 'What is the capital of England?' until they answer 'London'. When they do it should output how many attempts it took to get it right. (6 marks)

```
playing ← True
WHILE playing = True
  randNum ← RANDOM_INT(1,3)
  compChoice ← Convert_to_letter(randNum)
  OUTPUT 'Enter R, P or S for rock paper or scissors'
  userChoice ← USER INPUT
  displayResult(userChoice, compChoice)
  OUTPUT 'Do you want to play again?'
  playing ← USER INPUT
END WHILE
```

Pseudocode example 2

Which of the basic programming constructs are in the algorithm above? (1 mark)

How many subroutines are called in the algorithm? ____ (1 mark)

Explain how you can tell which subroutines are procedures and which are functions using an example from this algorithm? (3 marks)

Explain, using examples from pseudocode example 2 above, what a parameter is. (3 marks)

MrGoff.com Programming Test (Offline)

Write an algorithm for a subroutine to get a username from a user and check its length is between 3 and 12 characters. If it is not, then the algorithm should give a message saying so and make the user keep re-enter until they enter a username of a valid length. That should then be returned by the subroutine. (7 marks)

Explain the difference between local and global variables (3 marks)

Explain what structured programming refers too and what its advantages are for programming. (5 marks)