Part E [14 points] N.B. 1 point for each underline in formulas.

The sheet depicted here implements a simple Huffman encoder.
The address of the cell in the top left corner is A1.

letter	code	input	position	character	Hcode	output
	000	*max. 20 characters*				
a	001					
c	01					
d	10					
e	110					
r	1110					
t	1111					

All ranges have been named using the obvious labels.
letter - the characters that can be coded
code - corresponding Huffman codes

In the following view, a user has entered **input**.

letter	code	input	position	character	Hcode	output
	000	*max. 20 characters*	1	c	01	01
a	001	cat	2	a	001	01001
c	01		3	t	1111	010011111
d	10					
e	110					
r	1110					
t	1111					

Note that cells that were empty now display contents:
position - the position in the **input**
character - the character in that **position**
Hcode - the Huffman code of that **character**
output - the output string to that point

1) Write a formula to calculate the second cell in the **position** column. [7]

=IF(AND(ISNUMBER(F2), F2< LEN(input)) ,F2+1 ,"")

The columns **character**, **Hcode**, and **output** are all controlled by the same test.
=IF(ISNUMBER(position), *value_if_true*, value_if_false)

2) Write the *value_if_true* part for the second cell in the **output** column.[2]

J2 & Hcode

Part E2

Part E [14 points] N.B. 1 point for each underline in formulas.

3) A column in an Excel worksheet named **Letter Grade** contains the formula

=IF(Score>50,"D",IF(Score>60,"C",IF(Score>70,"B",IF(Score>80,"A","F"))))

What will appear in **Letter Grade** when **Score** is 48?

A) A B) B C) C
D) D E) F

4) Referring to the formula in the previous question, what will appear in **Letter Grade** when **Score** is 85?

A) A B) B C) C
D) D E) F

5) A company decides to give some of its employees a holiday bonus. Those who have been employed at the company for at least 10 years get a bonus if their performance is considered either *good* or *excellent*. Those who have not been employed at the company that long get a bonus only if their performance is considered *excellent*. Assume the columns are named as shown.

Years	**Rating**	**Bonus**
3	excellent	YES
15	poor	NO
12	acceptable	NO
2	good	NO
10	good	YES

Which formula could have been used to calculate the values in the **Bonus** column.

A) =IF(OR(AND(Years<10, Rating="good"),Rating="excellent"),"YES","NO")
B) =IF(OR(AND(Years>=10, Rating="good"),Rating="excellent"),"YES","NO")
C) =IF(Rating="good" AND IF (Years>=10," YES "," NO"))
D) =IF(Rating>="good",IF(Years>=10,"YES", "NO"),"NO"))
E) =IF(Years>=10 AND (Rating>="good"),"Yes","No")

6) Which of the following is not a function category in Excel?

A) Date & Time
B) Information
C) Math & Trig
D) Random
E) Text