

## Exam A: Solution

### Question 1:

Function LHSA( $n$ ) 8

$k = 1$

Do While  $k < n + 1$

$LHSA = LHSA + 2^k$

$k = k + 1$

Loop

End Function

Function RHSA( $n$ ) 5

$RHSA = 2 * (2^n - 1)$

End Function

The values of the functions for  $n = 15, 30$  are 4

$$LHSA(15) = RHSA(15) = \mathbf{65534}$$

and

$$LHSA(30) = RHSA(30) = \mathbf{2147483646}$$

The code for the macro would be simply:

Sub RHSA2() 8

$n = \text{Range}("A1").\text{Value}$

$\text{Range}("A3").\text{Value} = 2 * (2^n - 1)$

End Sub

**Question 2:**

$$\alpha = 0.2800 \text{ and } \beta = -0.0800.$$

9

$$r^2 = 0,9677.$$

6

$$y = -0.0002x^6 + 0.0072x^5 - 0.0968x^4 + 0.6514x^3 - 2.2676x^2 + 3.9858x - 2.08 \text{ and } r^2 = 0.9997.$$

10

**Question 3:**

Sub TraceA()

1

Dim A As Variant

2

Dim At(1 To 3, 1 To 3)

3

A = Range("A1:C3").Value

4

i=1

1

Do Until i = 4

4

TrA = TrA + A(i,i)

4

i=i+1

1

Loop

1

ret=MsgBox("The trace of A is:" & TrA, , "Exam 2007")

4

End Sub

**Question 4:**

Sub password()	1
pr = "Do you remember your password?"	1
ti = "City Space"	1
111:	1
ret = MsgBox(prompt:=pr, Buttons:=4, Title:=ti)	3
If ret = vbNo Then	1
ret = MsgBox("Please contact computer services for a new password!", 32, ti)	3
Else	1
ret = InputBox("Please, enter your password below:",ti)	3
If ret = "exam" Then	2
ret = MsgBox("Welcome to City Space!", 64, ti)	3
Else	1
GoTo 111	2
End If	1
End If	1
End Sub	

Internal examiner: Dr. Olalla Castro-Alvaredo