

SOLUTIONS TO TEST B, SPRING 2011

1. (a)

```
Function sumb1(n)
k = 1
Do While k < n + 1
sumb1 = sumb1 + ((-1) ^ k) * (k ^ 2 - 1)
k = k + 1
Loop
End Function
```

[10]

(b)

```
Sub sumb2()
ret = InputBox("enter here the value of n", "the sum")
k = 1
Do While k < n + 1
B = B + ((-1) ^ k) * (k ^ 2 - 1)
k = k + 1
Loop
```

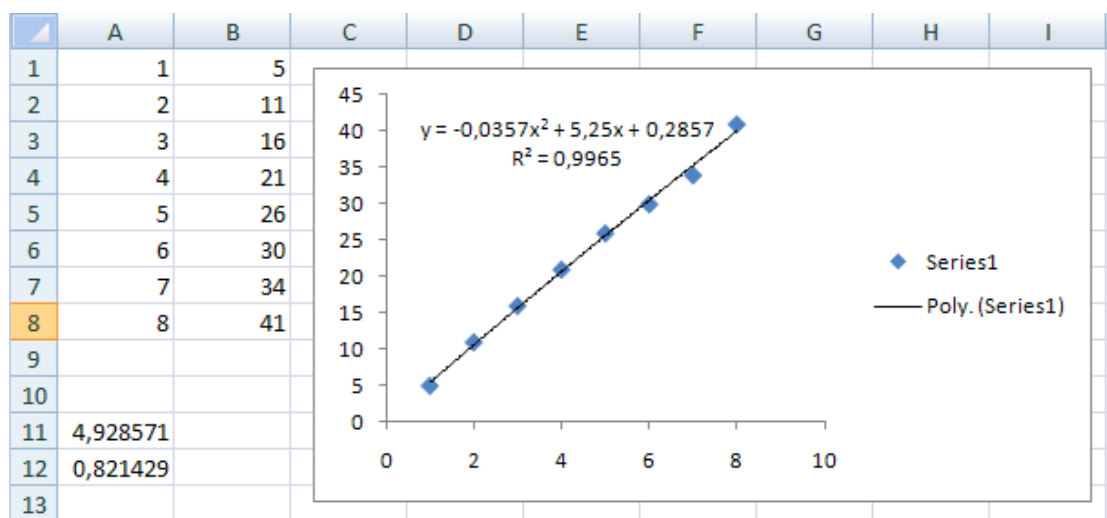
[10]

(c)

```
Function sumb3(n As Integer) As Single
sumb3 = (-1 + ((-1) ^ n) * (-1 + n + n ^ 2)) / 2
End Function
```

[5]

2. (a)



[10]

(b)

```
Sub plot()  
,  
' plot Macro  
' scatter plot + fitting of points  
,  
' Keyboard Shortcut: Ctrl+s  
,  
  
    Range("A1:B8").Select  
    ActiveSheet.Shapes.AddChart.Select  
    ActiveChart.SetSourceData Source:=Range("'Sheet1'!$A$1:$B$8")  
    ActiveChart.ChartType = xlXYScatter  
    ActiveChart.SeriesCollection(1).Select  
    ActiveChart.SeriesCollection(1).Trendlines.Add  
    ActiveSheet.ChartObjects("Chart 1").Activate  
    ActiveChart.SeriesCollection(1).Trendlines(1).Select  
    With Selection  
        .Type = xlPolynomial  
        .Order = 2  
    End With  
    Selection.Intercept = 0  
    Selection.InterceptIsAuto = True  
    Selection.DisplayEquation = True  
    Selection.DisplayRSquared = True  
End Sub
```

[10]

(c) The slope and intercept are the values given in the lower left hand side corner of the picture in part (a). [5]

3.

```
Sub sums()  
    Dim A As Variant  
    A = Range("B1:D3").Value  
    k = 1  
    s1 = 0  
    s2 = 0  
    s3 = 0  
    For k = 1 To 3  
        s1 = s1 + A(1, k)  
        s2 = s2 + A(2, k)  
        s3 = s3 + A(3, k)  
    Next k  
    If s1 = 1 And s2 = 1 And s3 = 1 Then  
        ret1 = MsgBox("A is an stochastic matrix", , "matrix")  
    Else  
        ret2 = MsgBox("A is not an stochastic matrix", , "matrix")  
    End If  
End Sub
```

The points would be roughly distributed as follows: 2 points for correct definition of A, 10 points for the correct loop structure, 5 points for the correct if structure, 8 points for the correct MsgBoxes.

4.

```
Private Sub Tog_Click()  
If Tog.Value = True Then  
ret = MsgBox("toggle is clicked", 32, "Togglebutton")  
Else  
TBox.Value = "toggle is false"  
End If  
End Sub
```

The rough distribution of points is: 9 points for correct if structure, 9 points for correct MsgBox. 7 for correct use of the TextBox.