
CITY UNIVERSITY LONDON

Excel VBA Practical Test

Group B

This is an open book exam. You may use your lecture notes as well as task- and solution-sheets from previous lab-sessions.

Write your answers in the booklet provided.

Full marks may be obtained for correct answers to all four questions.
Each questions carries 25 marks.

To avoid possible accusations of cheating close all other applications
except Excel before starting this exam.

Time: You have 90 mins to complete this test.

Turn over ...

1) (25 points) Verify the following identity:

$$\sum_{k=1}^n (k+7)(k+11) = \frac{1}{6}n(517 + 57n + 2n^2) . \quad (1)$$

- Write, for a given value of n , two different versions of a VBA code to create a user defined function (UDF) to evaluate the left hand side of equation (1). One version of the code should use the DO ... LOOP structure with the WHILE command. The second version should use the FOR ... NEXT structure.
- Write a user defined function depending on n , which reproduces the right hand side of this equation.
- Use the Excel spreadsheet to compute the values of the three functions for $n = 22$ and $n = 75$.
- Write down the VBA code for all three functions and report also the values for $n = 22$ and $n = 75$.

2) (25 points) Consider the following set of data

x-values:	1	1.5	2	2.5	3	3.5	4	4.5	5	5.5
y-values:	5.5	11	21	34.5	51	75.5	104	143	187	237

- Assuming that the points are linearly correlated, meaning that ideally they all lie on the line $y = \alpha x + \beta$, use the Excel built-in functions Slope and Intercept to determine α and β .
- Use the Excel built-in functions Linest to determine the square of the regression coefficient.
- Assume now a correlation of the form $y = \xi x^3 + \gamma x^2 + \delta x + \eta$ and determine the coefficients ξ, γ, δ and η by adding a trendline into an XY-chart. Determine also the square of the regression coefficient.
- Report all your numbers up to precision of four decimal places.

Turn over ...

- 3) (25 points) Use the Excel spreadsheet to record a Macro. When you run your macro it should fill cells D4 to F33 with the red colour, cells G10 to H27 with the blue colour, cells I12 to I14 and I23 to I25 with the black colour and the cells G13 to K13 with the grey colour. Call the macro “titanic” and design it such that it can be activated with Ctrl + t.
- View the VBA code of the recording you have produced and write down the code. Write down also all the comments the Macro recorder produces.
 - Without recording a new macro, indicate which lines in your Macro would have to be modified and how if instead of the initial black colour we wanted to fill cells I23 to I25 with the blue colour (leaving the rest of the Macro unchanged).
- 4) (25 points) Write a VBA code for a subroutine named “MockNectar” which simulates the process of exchanging your MockNectar points by presents on the web.
- When executed your program should produce a MsgBox with a “Yes”, “No” and “Cancel” button, with the message: “Welcome to the Mock-Nectar web-site! Do you want to exchange your Mock-Nectar points by presents?” Depending on the answer, your program should produce a new MsgBox, with an “OK” button only, but of different types and with different prompts:
 - When the “Yes” button is selected your program should produce a MsgBox with a warning message icon with message “Sorry, we have detected a problem with your card! Please, try again later!”.
 - When the “No” button is selected your program should produce a MsgBox with a warning query icon and message “Sure? You have 82345 points on your card!”. Here by using a GOTO instruction you should make your program go back to the beginning (the first point above).
 - When the “Cancel” button is selected your program should produce an OKOnly MsgBox with message “Thanks for using Mock-Nectar! Keep winning presents in the future!”
 - All your message boxes should carry the title “Win with Mock-Nectar!”.
 - Use variables to assign the text to the Title and Prompt parameters in MsgBox, such that for instance you only have to type “Win with Mock-Nectar!” once in your program. Declare all your variables.

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