ELECTRONIC ENGINEERING

Entrance Scholarship

Amser a ganiateir: 1.5 awr
Time allowed: 1.5 hours

Cyfarwyddiadau / Instructions:

Atebwch bob cwestiwn
Answer all questions

Total marks 100

Electronic Engineering: Entrance Scholarship

You are taking a trip to Brussels for a week. The exchange rate for the pound per euro fluctuates every day, according to the following table:

0.892	0.899	0.892	0.894

a) Calculate the median of the data set.   [6]
b) Calculate the mode of the data set.   [6]
c) Calculate the mean of the data set.   [8]
d) Calculate the standard deviation of the data set.   [10]

We have a mechanical lock with four tumblers, each tumbler has 36 positions corresponding to the letters of the alphabet and the numbers 0 to 9.:

a) How many different lock codes can we create with this lock?   [8]
b) Assume that the rightmost tumbler is mechanically defective such that it can only be set to the numbers 3 to 8 (and none of the alphabet letters). How many different lock codes can we create with the defective lock?   [12]

Explain how the circuit in Figure 1 works.   [8]
If V_{in} = 10V, what voltages appear across C_1 and C_2 at steady state?   [8]