



PRIFYSGOL
BANGOR
UNIVERSITY

**YSGOL CYFRIFIADUREG A PHEIRIANNEG ELECTRONIG
SCHOOL OF COMPUTER SCIENCE AND ELECTRONIC
ENGINEERING**

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

Trowch y dudalen drosodd pan ddywedir wrthyh / Please turn over when instructed

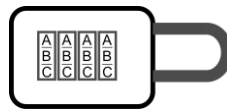
Electronic Engineering: Entrance Scholarship

1. 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:

0.891	0.893	0.898	0.894
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- Calculate the median of the data set. [6]
- Calculate the mode of the data set. [6]
- Calculate the mean of the data set. [8]
- Calculate the standard deviation of the data set. [10]

2. 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.:



- How many different lock codes can we create with this lock? [8]
- Assume that the rightmost tumbler is mechanically defective such that it can only be set to the numbers 4 to 7 (and none of the alphabet letters). How many different lock codes can we create with the defective lock? [12]

3. Explain how the circuit in Figure 1 works. [8]

If $V_{in} = 20V$, what voltages appear across C_1 and C_2 at steady state? [8]

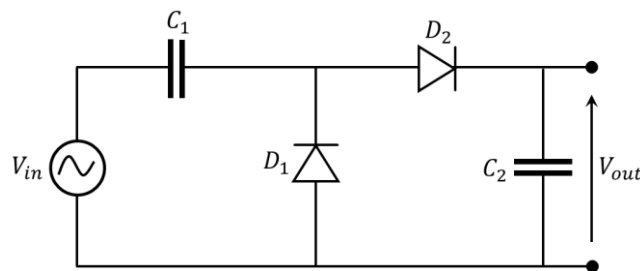


Figure 1

4. Calculate the current through the 4Ω resistor in the circuit shown in Figure 2. [34]

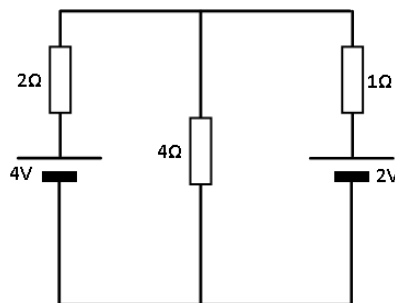


Figure 2

END OF EXAM