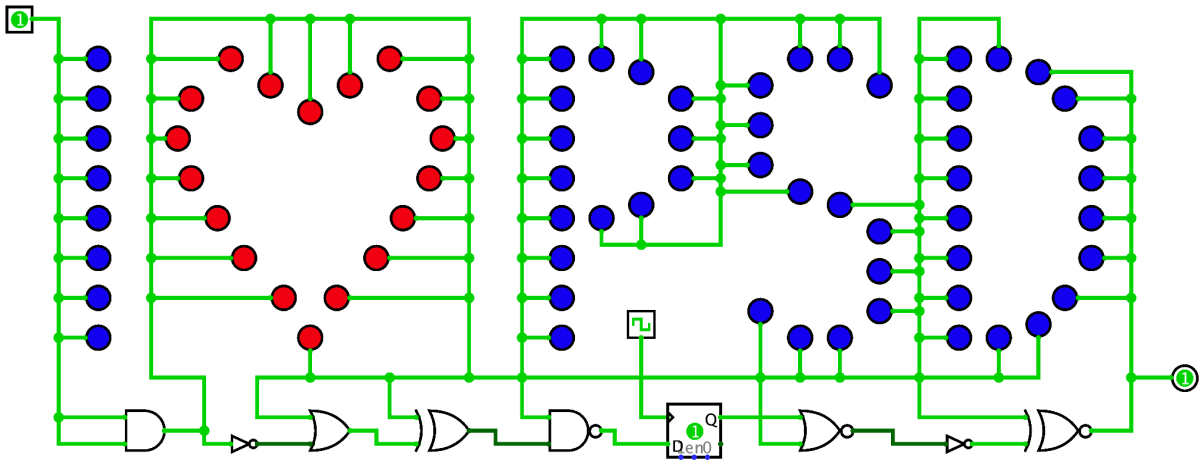
#PSDisFun❤️



Homework 1

Introduction to Digital Systems

2023-2024 Odd

UPI

#PSDisFun❤️

Instructions

- Only handwriting formats (on paper or digitally) are allowed
- **Write your name, student number, and class on every answer sheet**.
- Elaborate on how you got your answers.
- Homework must be submitted before Thursday, 7 September 2023 at 23.55 on the submission slot provided in SCELE.
- If **submission isn't done before 08.00 on Friday**, a **50 point penalty will be given**. After 08.00, homework **will not be graded**.

Submission

Submit your answers as a PDF document. If written on paper, scan or photograph the answer sheets and submit them as a PDF document.

Here is the naming convention:

`HW1_[TACode]_[NPM]_[Name].pdf`

Example:

- HW1_RAE_2212345678_RafifAdrianShahab.pdf

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Released - 31/08/2023

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1. Sir Idees needs your help to finish the table below, include your steps on solving it!

Base 2	Base 4	Base 7	Base 8	Base 10	Base 16
1101011					
	12231				
		654			
			701		
				712	
					451

2. After that, Sir Idees needs help on solving the equations below! Include your detailed steps of solving it. (Answer in base 10)
   a. $10011_2 + 1100_2 = (...)_{10}$
   b. $11010110_2 - 10110111_2 = (...)_{10}$
   c. $100100_2 + 110100_2 - 11001_2 = (...)10$
   d. $11001011_2 - 1100_2 = (...)_{10}$
   e. $10111010_2 + 1100_4 = (...)_{10}$
3. After solving those equations, Sir Idees needs you to work on operasi these harder operations. Write your answers in detail. (Answer in base 10)
   a. $AED_{16} + 78_9 = (...)_{10}$
   b. $123123_9 - 41321312_5 = (...)_{10}$
   c. $2004_6 + 100204_5 = (...)_{10}$
   d. $98_{10} * 1EEE_{18} = (...)_{10}$
   e. $20312_5/3_{10} = (...)_{10}$
4. A length 10 bit-string is a ***Hamming Code Word*** that uses even-parity where the bit with the index 1 is the leftmost bit. Find the error of the bit-string below:

   1010101101