

ENGR 101 Engineering Technology

Assignment 2

Due date: Wednesday, 22 May, 2024 (23:59 hrs)

You must type your answers using a word processor or any other similar computer program. Save the computer file containing your answers as a **pdf file** using the filename format: **Student Id number-A2.pdf**. For example, 2112409101-A2.pdf

Refer to the A2-Allocation (pdf) file for your allocated numbers. Columns a and b are decimal numbers, column c is an octal number and column d is a hexadecimal number.

1. Convert your two allocated decimal numbers (columns a and b) to binary numbers. Your answers must be in 8-digits format. (eg Decimal number 5 is 0000 0101 in 8-digits) Clearly show the steps that you used to obtain your answers.
2. Convert your two allocated decimal numbers (columns a and b) to octal numbers. Your answers must be in 3-digits format. (eg Decimal number 5 is 005 in 3-digits) Clearly show the steps that you used to obtain your answers.
3. Convert your two allocated decimal numbers (columns a and b) to hexadecimal numbers. Your answers must be in 4-digits format. (eg Decimal number 10 is 0A in 2-digits) Clearly show the steps that you used to obtain your answers.
4. Convert your allocated octal number (column c) to its decimal equivalent. Clearly show the steps that you used to obtain your answer.
5. Convert your allocated hexadecimal number (column d) to its decimal equivalent. Clearly show the steps that you used to obtain your answer.
6. Demonstrate how **binary subtraction** is done by subtracting two binary numbers obtained for Question 1, parts (a) and (b). That is $(b) - (a)$. Clearly show the steps that you used to obtain your answer.
7. Demonstrate how **binary multiplication** is done by multiplying the two binary numbers that you obtained for Question 1, parts (a) and (b). Clearly show the steps that you used to obtain your answer.