The American University in Cairo Computer Science & Engineering Department CSCE100108 – Fundamentals of Computer Science Spring 2022 – Assignment 1

Problem 1

- 1) What are the phases of program design?
- 2) State the difference between:
 - a. The main memory and the secondary memory
 - b. The functions of the compiler and the linker
 - c. Random and sequential access memory
- 3) What is the purpose of the operating system? Give three examples of popular operating systems.

Answer in Rose 3 & 12

Steppe H

Problem 2

The following numbers are represented in the base 10 number system. Perform the following arithmetic operations using unsigned fixed-point binary format and **show your work**:

- Add (24)10 to (12)10
- Add (32)10 to (76)10

Problem 3 (108)

Do the following operations using unsigned fixed-point binary arithmetic. Then check your work by converting all the numbers to base 10 and **show your work**:

10101011	1010,16		
+ 10100111	10100		
1111100010	101010		
+ 1011011101	1013		

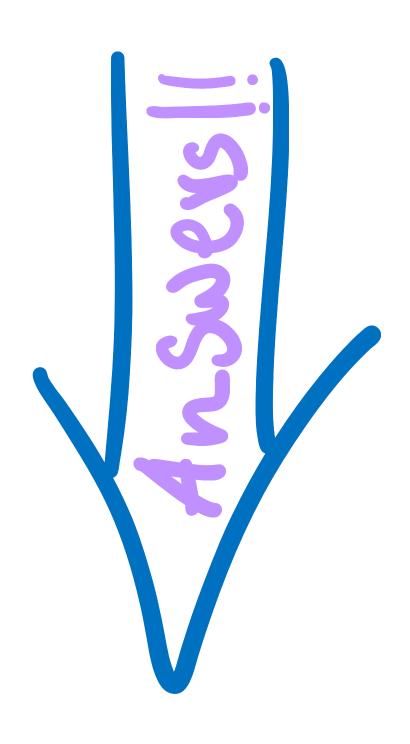
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Problem 4

Convert the following to the base indicated:

(1 <u>0110</u>)2	=	(26)8
(1010000010110110	1)2 =		416 E	
(24)10	=	,	30)8
(37)10	=	(40	010	1)2

24/8 3 0 3/40 0 3



	Problem(1):
•	1. There are 2 phases in the program design process:
	• Problem Solving Phase. • Implementation phase.
	2. State the difference.
	Main Hemory Stores instructions and data
	when a program is running while the Secondary Memory Stoves data and Instructions between
	8essions.
	(b) Compilers translate high-Level Languages
	While Linkers Combine the Object Code for the programs
	and pre-compiled routines into the Machine language
	program the CPU can run
•	Random Access Memory (RAM) Can directly
•	Access any Memory location. However, Sequential requires searching through other items first
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