FOUNTAIN UNIVERSITY OSOGBO, NIGERIA
P.M.B.4491, OSOGBO, OSUN STATE.
COLLEGE OF NATURAL AND APPLIED SCIENCES
DEPARTMENT OF MATHEMATICAL AND COMPUTER SCIENCES
FIRST SEMESTER EXAMINATIONS 2021/2022 SESSION

CPS 207: FOUNDATION OF SEQ. PROG. LANG.

Credit Unit/Status: 2 [C]
23/03/2022

Time Allowed: 2hrs

INSTRUCTION(s): **ANSWER ALL QUESTION IN SETION A AND ANY OTHER TWO (2) QUESTIONS IN SECTION B**

SECTION A: Answer all (30 Marks)

1 What are constants? [2 Marks]
2 Give two examples each of Integer constant, Character and String constant. [3 Marks]
3 Write instructions to evaluate the arithmetic expression $5 + (6-2)$ leaving the result in register ax using. [3 Marks]
4 Explain the following stating their functions:
   a. The Address Bus
   b. The data bus
   c. The control bus [3 Marks each]
5 The number, size, and types of registers vary from one microprocessor to another, list four basic microprocessor registers. [4 Marks]
6 What is the difference between the single chip microcomputer and a microprocessor chip? [3 Marks]
7 List and explain the three (3) segment of an assembly language. [6 Marks]

SECTION B: Answer any other two (2) questions

Question 1

a) Explain briefly with an appropriate example, 4 types of statements in an Assembly Programming Language. [4 Marks]
b) Write an Assembly language instructions format and explain each part with appropriate examples. [6 marks]
c) Write an Assembly language program to find the Sum of all numbers 1 to 10 starting from the rear and divide by 5. It then stores the result in AX. [5 Marks]

Question 2

a) Explain briefly the Logic components of a single chip microprocessor. [9 Marks]
b) List 3 examples each of 16bits, 32bits, and 64bits registers. [6 Marks]

Question 3
a) Discuss three (3) mode of execution in computer high level programming.   [3 Marks]
b) Differentiate between Assembly Language and High-Level Language.   [3 Marks]
c) Explain how processor performs its function or execute instructions.   [9 Marks]

Question 4
a) Consider the following line of code, explain the funtion of each line

```
;TITLE Add and Subtract          (AddSubAlt.asm)
; This program adds and subtracts 32-bit integers
.686
.MODEL flat,stdcall
.STACK 4096
; No need to include Irvine32.inc
ExitProcess PROTO, dwExitCode: DWORD
.code
main PROC
        mov  eax,10000h            ; EAX = 10000h
        add  eax,40000h            ; EAX = 50000h
        sub  eax,20000h            ; EAX = 30000h
        push 0
        call ExitProcess           ; to terminate program
main ENDP
END main
```

[15 Marks]