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Computer Engineering
COE 306
Assembly Language

Question 1

- It isn't a good idea to use numeric addresses when writing instructions that access variables because coded addresses in the instructions has to be updated anytime new variables are inserted before existing ones.

Question 3b

MAIN PROC - The MAIN PROC is a directive in assembly language programming that identifies the beginning of a procedure.

MOV AX, 47104 - The MOV instruction copies 47104 to the AX register.

AX - destination

47104 - Source

ADD EAX, 1270 - The add instruction adds 1270 to the EAX register.

MOV DS, AX - The MOV instruction moves AX to DS.

DS - Destination

AX - Source

main ENDP - The ENDP directive indicates the end of the main procedure.

Question 1b

The type of files produced by the assembler are the object files and listing files.

6/11

Question 2a

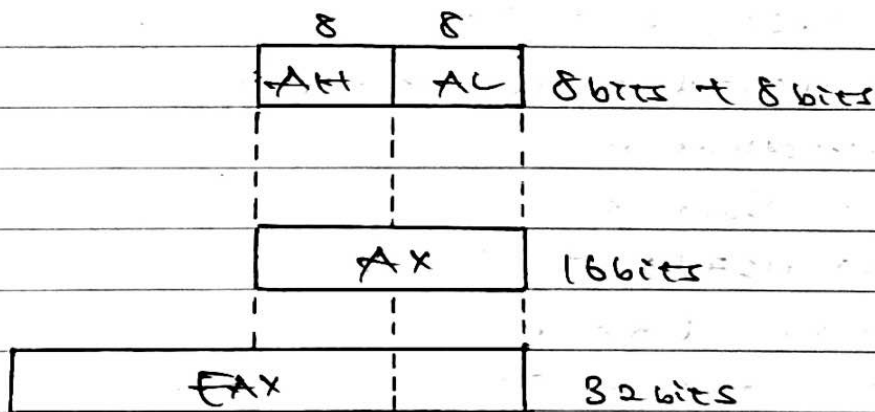
Portability as applied to programming language can be simply explained as a language whose source programs can be compiled and run on a vast variety of computer systems. This language is said to be portable.

Question 2b

No.

The assembly language for x86 processors are not the same as those for computer systems such as the AMD or Motorola 68000 because they are different processors.

Question 2c



Question 4

TITLE Subtract

; This program subtracts 3 integers using only 16 bits.

INCLUDE Irvine32.inc

- Code

MAIN PROC

MOV EAX, 1000h

SUB EAX, 2000h

SUB EAX, 2000h

CALL DumpRegs

EXIT

Question 3a

Segmentation is achieved in assembly language by the use of directives (command embedded in the source code that is recognized and acted upon by assembler).

They are:

- DATA - This directive identifies the area of a code containing variables.
- STACK - This directive identifies the area of a program holding runtime stack.
- CODE - This directive identifies the area of a program containing executable instructions.

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Question 3c

i) Value 3 BYTE -10, -20, -30, -40, -50
This declares 5 variables of signed characters.

ii) Value 2 DWORD

This line declares a variable "Value 2" of data type double word so, therefore it is an unsigned 32 bit with empty value.

iii) VALUE BYTE 6dh

This line declares a variable of name "Value 1" and data type "byte" which contains 6dh.

Value 1 - Label

BYTE - Size of Variable

6 Dh - Value