

Eme Uban Emmanuel

171 EDC 521023

COMPUTER ENGINEERING

Co E 306

Question 1

a) Why would it be a good idea to use numeric addresses when writing instructions that access variables

⇒ Because the addresses coded in the instructions would have to be updated whenever new variables were inserted before existing ones.

b) Types of files produced by assembler?

⇒ Object files (files containing machine language but non readable)

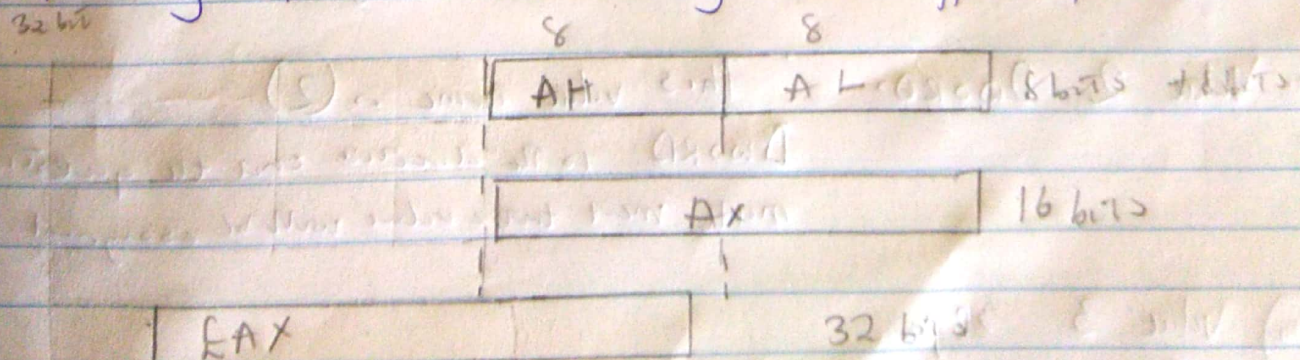
* Listing files

QUESTION 2

a) Portability in computer programming language is the characteristic attributed to a computer program if it can be used in an operating systems other than the one in which it was created without requiring work. In high level programming is the usability of the same software in different environment. The prerequisite for portability is the generalized abstraction between the application logic and system interface. Porting is doing or performing any work necessary to make computer program run in any environment.

b) No they are not because they have different processors.

2c)



The EAX is used for arithmetic and logical operations of 32 bits.

which can be subdivided into 16 bits registers.

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QUESTION 3

- a) Segmentation is achieved by using directives which are embedded commands in the source code. They are
- * Code [used to describe the area with executable instructions]
 - * data [used to describe the area with variables declarations]
 - * stack [used to describe the area with stack pointers]

b) MAIN PROC : This shows that the procedure has been initialized the variable "main" is used to name the procedure being executed.

- MOV AX, 47104 : Mov 47104 to the AX register
- ADD EAX, 1270 : ~~Add~~ This performs an arithmetic operation on the EAX register by adding 1270 to the EAX register.

M.O.V D5, AX: This moves the value of the AX register into the D5 register.

MAIN END P

This ends the procedure runtime

i) Value 1 Byte BDB => (value 1) is the name given to the variable (Byte) is the directive that defines the data (BDB) is the initialized in hex address

ii) Value 2 DWORD : This value name is (2) DWORD is the directive and the question mark means that a value will be assigned

iii) Value 3 3Byte declares a variable called "Value 3" which has equivalent of 3 signed bytes

Ques no 4

Ans

TITLE "A program that subtracts two integers". (sub.asm)

INCLUDE Irvine32.inc

Code

MAIN proc

MOV AX, 120h ; AX = 120h

SUB AX, 100h ; AX = 20h

CALL DumpRegs,

EXIT

MAIN ENDP