

# FINAL ASSIGNMENT 01

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Sec: B

## QUESTION 01

### ROLE OF OS:

- ↳ The operating system searches for the program's filename in the current disk directory, if not found then it searches in a list of predefined directories called "paths".
- ↳ If the file is found the OS loads the basic information about the file in the memory, and loads the program into the memory, if the file is not found then an error message is shown.

### ROLE OF COMPILER:

- ↳ Once the file is loaded in the system's memory the compiler converts the source code file into an object file through the help of assembler.

↳ After which the process of "Linking" is performed.

Linking: ~~exp~~ The procedure of copying the required procedures from the library files.

↳ After that the executable file is produced and then run into the OS through a loader.

← x →

## QUESTION 02

↳ In real address mode, 16 bit registers indicate base address of preassigned memory areas named segments.

↳ In protected mode, segment registers hold pointers to segment descriptor tables.

## QUESTION 03

a) Segment : ABOE  
Offset : 5DS9

ABOE0

+ 5DS9

Read Address = BOE69h



b)

Segment: 8FE3h

Offset: ?

Real Address: A835Fh

Real address:  $10(\text{segment}) + \text{offset}$

$$A835F = 10 \times 8FE3 + x$$

$$A835F = 8FE30 + x$$

$$x = A835F - 8FE30$$

$$\text{Offset} = x = 1852Fh$$

c)

Segment: x

Offset: 5EGDh

Real address: FF41Dh

Real Address:  $10(\text{Segment}) + \text{Offset}$

$$FF41D = 10x + 5EGD$$

$$10x = FF41D - 5EGD$$

$$10x = F95B0$$

$$\text{Segment} = x = F95B$$

d)

Segment: ?

Flag Offset: ?

Real address: A5B6Dh

$$\text{let } \text{offset} = 56ED$$

$$R.A = 10 \times \text{segment} + 56ED$$

$$10 \times \text{segment} = A5B6D - 56ED$$

$$10 \times \text{segment} = A0480$$

$$\text{segment} = A048$$

x — x — x

## QUESTION 04

Because Every java source program must be compiled into Java bytecodes (in the form of a .class file) before it can execute. The same program can run on any computer system that has Java runtime software installed.

- ↳ The Java byte code is executed on runtime by a program known as a Java Virtual Machine (JVM). JVM is platform dependent thus cannot run on every system.

x — x — x

## QUESTION 05

### Similarities:

Real address mode	Virtual 8086 mode
↳ Can only address 1 MB memory	↳ Can also create virtual 8086 machines with 1 MB of addressable memory.
↳ MS-DOS runs in real address mode	↳ MS-DOS can also run through a virtual 8086 machine.

### Differences:

Real Address mode	Virtual 8086 mode
↳ Can access upto 1 MB memory	↳ Can access upto 4 GB memory
↳ Can run windows 98, MS-DOS	↳ Can run windows 2000, windows XP.
↳ Can cause OS to crash	↳ If a single virtual machine crashes



## QUESTION 06

**Control Flags:** These flags determine the manner in which the instructions are carried out.

**Status Flags:** The flags which change the values on the basis of result of operations are called status flags.