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Assignment # 01

Assembly Language

Assignment # 01 (1)

1) In your own words, describe the virtual machine concept.

Ans) A (VM) is a software program or operating system that not only exhibits the behavior of a separate computer, but it is also of performing tasks such as running applications and programs like a separate computer.

2) What is the relationship b/w high-level-language and machine language.

Ans) High-level language program must be translated into machine language before they can be executed. (Machine language instruction are encoded as binary numbers that are meant to be used by a machine, not read or written. Syntax that is closer to human language.

3) Give the example of an embeded System application.

Ans) Some example of embeded system application are automobile fuel ignition system, are conditionally control system, security system, flight control system, hand-held, computers, modems, printer, and other intelligent, computer peripherals.

4) Explain the concept of portability as it applied to programming language.

Ans) A language whose source program can be compiled and run on a wide variety of computer system is said to be portable.

5) what is a device drive?

Ans) Device drive are programs that translate general operating system commands into specific reference to hardware details that only the manufacture knows.

6) Why would a high-level language not be an ideal tool for writing a program that directly accesses a particular brand of printer.

Ans) A high-level language may not be provide for direct hardware access. Even if it does, awkward coding techniques must often be used, resulting in possible maintance problem.

7) Translate the following c++ expression to assembly language, using the example presented earlier in this chapter as a Guide:

$$X = (Y \times 4) + 3$$

Ans) Code for the expression

$$X = (Y * 4) + 3$$

```
mov eax, Y ; mov Y to EAX
mov ebx, 4 ; mov 4 to EBX
imu ebx    ; ; EAX = EAX *
add eax, 3 ; add 3 to EAX
mov X, eax ; mov EAX to X
```

8) In your own words, describe the virtual machine concept?

Ans) Virtual machine concept computer are constructed in layer, so that the layer represented a translation layer from a higher-level instruction set to a lower-level instruction set.

9) Why was unicode inuented?

Ans) Unicode is a universal computing standard to represented texts in most writing system. It was inuented to store most of the words characters. it is started during 1987.

10) What is the binary representation of the hexadecimal number: E5B6AED7?

Ans) (1110 0101 1011 0110 1010 1110 1101 0111)$_2$

11) what is decimal representation of each of the following unsigned binary integer.

Ans) $1\times2^7 + 1\times2^6 + 1\times2^5 + 1\times2^4$

$+ 1\times2^3 + 0\times2^2 + 0\times2^1 + 0\times2^0$

$= 128 + 64 + 32 + 16 + 8 + 0 + 0 + 0$

$= 128 + 64 + 32 + 16 + 8$

$= (248)_{16}$.

12) what is the hexadecimal representation of the ~~hexadecimal~~ binary ~~number~~ number 1100 1111 0101 0111?

Ans) $(CF57)_{16}$.

13) what is unsigned decimal representation of each of the following hexadecimal integer BA?

Ans) 58

14) Create a truth table to show all possible input and output for the Boolean function describe by $\neg(A \vee B)$

Create a table
$\neg(X \vee Y)$

x	$\neg x$	Y	$\neg x \vee y$
F	T	F	T
F	T	T	T
T	F	F	F
T	F	T	T

15) what is the sum of binary integer 00001111 + 00001111?

Ans)

$$\begin{array}{r} {\scriptstyle 1\ \ 1\ \ 1\ \ 1\ \ \ \ } \\ 0\ 0\ 0\ 0\ 1\ 1\ 1\ 1 \\ 0\ 0\ 0\ 0\ 1\ 1\ 1\ 1\ + \\ \hline (0\ 0\ 0\ 1\ 1\ 1\ 1\ 0) \end{array}$$

=

16) what is the decimal representation of the signed binary number 10110101.

Ans) 1 0 1 1 0 1 0 1

= -128 64 32 16 8 4 2 1

= - 128 + 64 + 32 + 16 + 8 + 4 + 2 + 1

= -128 + 32 + 16 + 4 + 1

= -75.

17) what is the 16-bit hexadecimal representation of signed decimal interger -26?

Ans) 26 → 16 | 26, 1 — 10 ⇒ A

26 → 1A

⇒ 1A ⇒ 0011 1010

1 1 1 0 0 1 0 1 — 1st complement

+1 — 2nd complement

(1110 0110)

26

$\Rightarrow -26 = (E6)$

18) Convert a 16-bit hexadecimal signed number 7F9B to decimal.

Ans)

7F9B

$= 7 \times 16^3 + F \times 16^2 + 9 \times 16^1 + B \times 16^0$

$= 7 \times 4096 + F \times 256 + 9 \times 16 + 0$

$= 7 \times 4096 + 15 \times 256 + 9 \times 16$

$= 28672 + 3840 + 144$

$= 32656$