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14273

Assembly language

Assignment # 1

Q1:- What is the relationship between high-level language and machine language?

Ans:- High-level language programs must be translated into machine language before they can be executed. (Machine language instructions are encoded as binary numbers that are meant to be used by a machine, not read or written by people. High-level language use a syntax that is closer to human language.

Q2:- 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.

Q3:- Give the example of an embedded system application.

Ans: Some example of embedded

System application are automobile for ignition system, air conditioning control systems, flight control system, hand-held computers, modems, printer and other intelligent computer peripherals.

Q4:- What is a device driver?

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

Q5:- 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 it does awkward coding technique must often be used, resulting in possible maintain problem.

Q 6:- Translate the following C++ expression to assembly language, Using the example presented earlier in this chapter as a guide:-

$$x = (y * 4) + 3$$

Code for the expression

$$x = (y * 4) + 3$$

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mov eax, y ; move y to EAX
mov ebx, 4 ; move 4 to EBX
imul ebx ; EAX = EAX * EBX
add eax, 3 ; add 3 to EAX
mov x, eax ; move EAX to x
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Q 7:- In your own words, describe the virtual machine concept.

Ans:- Virtual machine concept computers are constructed in layers, so that each layer represented a translation layer from a higher-level instruction set to a lower-level instruction.

Q 8:- Why was unicode invented?

Ans:- Unicode is a universal computing standard to represent texts in most writing system. It was invented to store most of the world's characters. It is started during 1987.

Q9:- What is the hexa-decimal representation of the binary number 1100 1111 0001 0111?

Ans:- $(CF57)_{16}$

Q10:- In your own word, describe the virtual machine concept.

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

Q11:- What is the binary representation of the hexa-decimal number

ESB6AED7 ?

Ans:- $(1110\ 0101\ 1011\ 0110\ 1010\ 1110\ 1101\ 0111)$

Q12:- What is unsigned representation of the ~~hexa-decimal~~ each of the hexa-decimal integer 3A?

Ans:- 58

Q13:- What is the decimal representation of each of the following unsigned binary integer 1111000?

$$\text{Ans:- } 1 \times 2^7 + 1 \times 2^6 + 1 \times 2^5 + 1 \times 2^4 + 1 \times 2^3 \\ 0 \times 2^2 + 0 \times 2^1 + 0 \times 2^0$$

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

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

$$= (248)_{10}$$

Q14:- What is the sum of binary integer 00001111 + 00001111?

Ans:-

$$\begin{array}{r} 1000 \\ 00001111 \\ + 00001111 \\ \hline 00011110 \end{array}$$

Q15:- What is the value of Boolean Expression $(T \wedge F) \vee T$

T	F	$T \wedge F$	$(T \wedge F) \vee T$
0	1	0	1
0	1	0	1
1	0	0	0
1	0	0	0

Q16:- Create a truth table to show all possible inputs and outputs for the boolean function described by $\neg(A \vee B)$.

$$\neg(A \vee B)$$

A	$\neg A$	B	$\neg(A \vee B)$
F	T	F	T
F	T	T	T
T	F	F	F
T	F	T	T