Answers to Self-Test Questions

Tutorial 3: Generating a Time Delay

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1.	The *accumulator* is the working register of the TMS320F24x where mathematical and logical operations are carried out.
2.	The instruction `LACC` means Load Accumulator.
3.	a) `LAC #3 ; Incorrect. Should be LACC.` b) `LACC 35h ; Incorrect. Loads from data memory.` c) `LACC #140h ; Correct.` d) `LAK 43h ; Incorrect. Should be LACC.`
4.	The instruction `SUB #1` subtracts the operand 1 from the accumulator.
5.	The instruction `BCND label, EQ` will branch when the condition `EQ` is TRUE. Here `EQ` means *equal to zero*. It is commonly used after a comparison.
6.	The condition `EQ` evaluate to TRUE when the accumulator contains zero. If the accumulator contains any other value, then the condition EQ will evaluate to FALSE.
7.	We might implement a `do-while` construction in preference to a `while` loop to save code. A `do-while` construction uses less instructions than does a `while` construction and therefore runs faster.
8.	The condition `NEQ` evaluates to TRUE when the accumulator contains any value that is not zero; for example, a positive or a negative number.
9.	The `while` loop has the advantage over the `do-while` construction in that if a starting value of zero is used, the `while` loop will take a short time to execute. On the other hand, a zero starting value applied to a `do-while` loop can roll over to a high value and can take a long time to execute; not what is intended.
10.	After the following two instructions are executed

	`CLRC SXM ; Turn off sign-extension mode`
	`LACC #0FFFFh`
	the accumulator will contain 0000FFFFh. By turning off sign-extension mode, the value FFFFh is taken to be a positive number.

11.	After the following two instructions are executed

	`SETC SXM ; Turn on sign-extension mode`
	`LACC #0FFFFh`
	the accumulator will contain FFFFFFFFh. By turning on sign-extension mode, the value FFFFh is taken to be a negative number (-1 decimal).

12.	The maximum positive value that can be loaded into the accumulator using the instruction `LACC`, which is not effected by `SXM` is 7FFFh. The most significant (left-most) bit is the sign bit, and must always be zero for a positive number.