**Module 12: Application Programming Interface and Final Application**

1. Which of the following statements is correct? An API is a

1. set of routines, protocols, and tools for building software applications for a specific hardware platform.
2. hardware abstract layer that can provide a standard programing interface for applications developers.
3. software abstract layer that can a provide standard programing interface for applications developers.
4. None of the above.

2. Which of the following benefits cannot be obtained by using an API for application development?

1. Reducing development time of applications
2. Providing more control over low-level hardware
3. Porting of software between multiple devices
4. Enhancing software reusability

3. Which of the following functions is typically found in the retarget.c file and used to read a character from a peripheral?

1. int fputc(int ch, FILE \*f)
2. int fread(FILE \*f)
3. int fread (int ch, FILE \*f)
4. int fgetc(FILE \*f)

4. Which of the following might be API functions? (There may be more than one correct answer.)

1. A function that draws a shape on the screen
2. A function that initializes both the processor and the peripherals in an SoC
3. A function that writes a value to 8-bit LEDs
4. Software delay programs

5. Why does an API typically have call-back functions?

1. To enable users to control or specify the low-level hardware device in their application code
2. To enable the porting of software between multiple devices
3. To allow calling back functions from similar API tools
4. All of the above.

6. Which of the following features of the Cortex-M0 may help reduce power consumption? (There may be more than one correct answer.)

1. Two architectural sleep modes
2. Two instructions for entering sleep modes
3. Debug subsystem
4. Wakeup interrupt controller

7. Which of the following areas of Cortex-M0 memory needs to be modified to enable the sleep-on-exit feature?

1. Nested vector interrupt controller
2. System control block
3. Data watch unit
4. System Tick timer

8. How does the sleep-on-exit feature help reduce the power consumption of an SoC?

1. It typically reduces the energy consumed by the stacking and unstacking processes between interrupts.
2. It reduces the clock frequency to some parts of the system.
3. It reduces voltage to various parts of the system.
4. It turns off the power supply to some parts of the system.

9. Which of the following statements is correct?

1. Pooling is an application flow structure that enables the processor to go quickly into sleep mode.
2. Pooling is an application flow structure that improves the efficient use of CPU time.
3. Pooling is an application flow structure that may sometimes waste processor time.
4. Pooling is an application flow structure that is particularly useful for low power applications.

10. Why does the use of an interrupt-driven application flow structure help reduce the power consumption of SoCs? (There may be more than one correct answer.)

1. Because it avoids unnecessary stacking and unstacking processes
2. The use of an interrupt-driven operation solution typically allows the processor to spend more time in sleep mode as compared to the use of pooling flow structures.
3. Because it allows a program to run all the time, even if no processing is required
4. Because interrupt-driven operations are particularly useful in situations when an I/O operation is required.