**Module 1: Introduction to Arm-based System-on-Chip Design**

1. The widespread use of semiconductor technologies is a result of which of the following factors?

1. Cheaper fabrication cost per function
2. Developing high-performance transistors
3. The automation of the IC design processes
4. All of the above.

2. Which of the following issues are typically addressed at the specification stage of the SoC design process?

1. The analysis of crosstalk noise
2. Static timing analysis for digital blocks
3. The identification of the operation modes of the system
4. None of the above.

3. Which of the following characteristics are limitations of SoCs?

1. Lack of power efficiency
2. Large area overhead
3. Degraded performance
4. Complex design process

4. Which of the following statements is correct? (There may be more than one correct answer.)

1. An SoC has higher performance than an MCU.
2. An SoC may contain multiple memory cores while an MCU typically has a single memory core.
3. An MCU can run numerous OSs while an SoC does not typically have this capability.
4. An MCU is typically used for basic embedded applications while SoCs are used in complex applications such as smartphones.

5. In the SoC design flow, hardware/software partitioning typically:

1. increases the complexity of the design process.
2. allows the use of third-party IP cores and software applications to build the system.
3. helps reduce power consumption.
4. causes an increase in the area overhead.

6. Which of the following techniques does not help decrease the design-productivity gap?

1. The use of third-party IP cores
2. Design automation
3. Recruiting more design engineers
4. Using more advanced fabrication technologies

7. Which of the following issues is not addressed at the prototyping stage of the SoC design process?

1. Placement and routing
2. Synthesis
3. Definition of the interface between hardware and software
4. Simulations of the software

8. Which of the following statements is correct?

1. An MCU typically has multiple processor cores.
2. An MCU has basic IOs and other basic peripherals, but does not have a memory block.
3. An MCU is mainly used for advanced embedded applications.
4. An MCU typically consumes less power than an SoC.

9. Which of the following statements is incorrect?

1. An SoC is typically built using cores from different vendors.
2. Testing an SoC requires hardware/software co-simulation.
3. An SoC is normally developed for a specific application.
4. The SoC hardware components can be easily replaced if faulty.

10. Which of the following statements is correct? (There may be more than one correct answer.)

1. This SoC verification is an iterative process.
2. The SoC verification sometimes requires additional software development.
3. The SoC verification sometimes requires additional hardware optimization.
4. The SoC verification is typically performed after device fabrication.