Workout all the MCQs (1-10) and any 5 from optional part (11-17)

Independent University, Bangladesh
Department of Computer Science and Engineering
CSE315/CSC413/CEN413: Design of Operating System **Time: 1h 10m**

1. Operating systems manages
    a. All memories
    b. Only main memory
    c. Main memory and secondary memory
    d. Cache memory and registers

2. In multiprogramming systems, the CPU executes multiple processes by switching among them, but the switches occur frequently, providing the user with a fast response time.
    a. True
    b. False
3. System daemons are part of the kernel.
    a. True
    b. False
4. Balanced binary search tree can provide worst case performance of
    a. O(1)
    b. O(n)
    c. O(n log n)
    d. O(log n)
5. Android implementation uses
    a. Kernel in C and Assembly language, system programs in C and C# and application framework in mostly Java.
    b. Kernel in C++ and Assembly language, system programs in C and C++ and application framework in mostly Java.
    c. Kernel in C and Assembly language, system programs in C and Python and application framework in mostly Java.
    d. None of the above.
6. For process failure OS uses
    a. Crash dump and log file
    b. File system
    c. Core dump and log file
    d. None of the above
7. Distributed operating system is less autonomous than network operating system environment.
    a. True
    b. False
8. In Platform as a service(PAAS), user of the Cloud Service Provider manages
    a. Application
    b. Application framework, compiler, runtime environment, databases
    c. Networking, storage, operating system, virtual machine, server hardware, Application framework, compiler, runtime environment, databases
    d. None of the above
9. Mach used in Darwin is a pure microkernel structure.
    a. True.
    b. False.

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10. Programs written in JNI are generally portable from one hardware device to another.

- **a.** True.
- **b.** False.

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11. What is the main advantage of the microkernel approach to system design? How do user programs and system services interact in a microkernel architecture? What are the disadvantages of using the microkernel approach?

12. What are the advantages and disadvantage of NUMA multiprocessor system?

13. How do clustered system differ from multiprocessor system? What is meant by graceful degradation?

14. What are the steps to generate an OS from scratch? Answer with an example.

15. Describe why android uses ahead-of-time rather than just-in-time (JIT) compilation? What are the main features of bionic C?

16. In what ways loadable kernel module structure is similar to layered as well as microkernel?

17. Explain different ways to make an application to run on multiple OS? Which approach is most efficient?