CISC ???? Midterm Exam

Pick the best answer that fits the question. Not all of the answers may be correct. If none of the answers fit, write your own answer. There are at least 3 questions where the correct answer is to write it.

1. (5 points) Four conditions for a deadlock:

   (a) Mutual Exclusion; Bounded Waiting; No-Preemption; Circular Wait

   (b) Mutual Exclusion; Un-Bounded Waiting; No-Preemption; Circular Wait

   (c) Mutual Exclusion; Hold-and-Wait; No-Preemption; Circular Wait

   (d) Mutual Exclusion; Hold-and-wait; Preemption; Circular Wait

   (e) Other:

2. (5 points) Three criteria critical section solution must satisfy:

   (a) Mutual Exclusion; Bounded Waiting; Progress

   (b) Mutual Exclusion; Preemption; Progress

   (c) Mutual Exclusion; Circular Wait; Bounded Waiting

   (d) Mutual Exclusion; Bounded Progress; Waiting

   (e) Other:

3. (5 points) Round Robin with very large quantum size:

   (a) Is often better than SJF.

   (b) Equivalent to FCFS.

   (c) Inefficient due to frequent context switches.

   (d) Must satisfy Mutual Exlusion

   (e) Other:

4. (5 points) You can prevent a deadlock by:

   (a) Using Round Robin.

   (b) Waiting for resources.

   (c) Sharing resources.

   (d) All of the above.

   (e) Other:

5. (5 points) Asynchronous communication

   (a) Is similar to Synchronous, except with preemption.

   (b) Has a bounded waiting property.

   (c) Does not wait.

   (d) All of the above.

   (e) Other:

6. (5 points) You can get into a deadlock with semaphores:

    (a) P1:wait(S1); P2: wait(S2); P1: wait(S1); P2: wait(S2);

    (b) P1:wait(S1); P2: wait(S2); P1: wait(S2); P2: wait(S2);

    (c) P1:wait(S1); P2: wait(S1); P1: wait(S2); P2: wait(S2);

    (d) P1:wait(S1); P2: wait(S2); P1: wait(S2); P2: wait(S1);

    (e) Other:

7. (5 points) Preemptive scheduling

    (a) Is found in FCFS.

    (b) Uses an interrupt to take away the CPU from current process.

    (c) Will not interrupt important tasks.

    (d) All of the above.

    (e) Other:

8. (5 points) Busy waiting

    (a) Is how Bakery Algorithm works.

    (b) Allows the process to do something while waiting.

    (c) Is good for long running tasks.

    (d) Is a feature of shortest-job-first.

    (e) Other:

9. (5 points) Five batch jobs, A through E, arrive at a computer center at almost the same time (but in order A through E). They have estimated running times of 12, 5, 1, 7 and 9 minutes. FCFS order and waiting times are:

    (a) A, B, C, D, E, F; avg wait time: 8.4

    (b) A, B, C, D, E, F; avg wait time: 16.7

    (c) A, B, C, D, E, F; avg wait time: 15.5

    (d) A, B, C, D, E, F; avg wait time: 17.8

    (e) Other:

10. (5 points) Five batch jobs, A through E, arrive at a computer center at almost the same time (but in order A through E). They have estimated running times of 12, 5, 1, 7 and 9 minutes. SJF order and waiting times are:

    (a) C, B, D, E, A: avg wait time: 6.2

    (b) C, B, D, E, A: avg wait time: 7.4

    (c) C, B, D, E, A: avg wait time: 14.4

    (d) C, B, D, E, A: avg wait time: 0

    (e) Other:

11. (5 points) Five batch jobs, A through E, arrive at a computer center at almost the same time (but in order A through E). They have estimated running times of 12, 5, 1, 7 and 9 minutes. RoundRobin with quantum size of 4 order and waiting times are:

    (a) A, B, C, D, E, F, A, B, D, E, A, E; avg wait time: 8.4
    (b) A, B, C, D, E, F, D, E, A, E; avg wait time: 16.7
    (c) A, B, C, D, E, F, A, B, C, D, E, F; avg wait time: 15.5
    (d) A, B, C, D, E, F, E, A, E, D, B; avg wait time: 17.8
    (e) Other:

12. (5 points) You would not want to use busy waiting when:

    (a) expected waiting time is less than quantum size.
    (b) you have many processors.
    (c) you will be waiting for long time.
    (d) when you don't mind being busy.
    (e) Other:

13. (5 points) When the process is in the ready queue:

    (a) It is waiting for IO to complete.
    (b) It is waiting for CPU to free up.
    (c) It is waiting on a ready semaphore.
    (d) It is waiting for input.
    (e) Other:

14. (5 points) Process control block:

    (a) Blocks asynchronously.
    (b) Puts process to sleep.
    (c) Maintains the state of CPU registers while process is not running.
    (d) Not used by the scheduler.
    (e) Other:

15. (5 points) CPU IO ports are used for:

    (a) send small amounts of information outside the CPU.
    (b) send large amounts of information outside the CPU.
    (c) All of the above.
    (d) None of the bove.
    (e) Other:

16. (5 points) The best (average waiting time wise) scheduling algorithm is:

    (a) Elevator scheduler

    (b) Shortest Job First

    (c) FCFS

    (d) Round Robin

    (e) Other:

17. (5 points) The purpose of DMA is:

    (a) To schedule processes with large data to run first.

    (b) To block on data writes.

    (c) To send small messages between CPU and devices.

    (d) To move large chunks of data between memory and devices.

    (e) Other:

18. (5 points) CPU accessing RAM is:

    (a) Synchronous

    (b) Asynchronous

    (c) Happens through DMA

    (d) Happens through IO ports.

    (e) Other:

19. (5 points) Interrupts

    (a) Generated by hardware.

    (b) Generated by software.

    (c) Interrupt the currently running process.

    (d) All of the above.

    (e) Other:

20. (5 points) Preemption

    (a) Accomplished via interrupts.

    (b) Makes SJF faster than FCFS.

    (c) Eliminates the need for synchronization.

    (d) Is primary cause of deadlocks.

    (e) Other: