**Studytonight – OS test 7 – Aditya Jain**

1. **Listed below are some operating system abstractions and the hardware components. Which matching pairs is correct?**
   * 1. **Thread A. interrupt**
     2. **Virtual address space B. memory**
     3. **File system C. CPU**
     4. **Signal D. Disk**

**a . i-C, ii-B, iii- D, iv-A**

b . i-B, ii-C, iii- D, iv-A

c . i-C, ii-D, iii- A, iv-B

d . i-C, ii-A, iii- D, iv-B

1. **The correct matching of the following pairs is:**
   * 1. **DMA I/O A. High Speed RAM**
     2. **Cache B. Disk**
     3. **Interrupt I/O C. Printer**
     4. **Condition Code Register D. ALU**

a . i-C, ii-B, iii- D, iv-A

b . i-B, ii-C, iii- D, iv-A

**c . i-B, ii-A, iii- C, iv-D**

d . i-C, ii-A, iii- D, iv-B

1. **A critical region is:**
2. One which is enclosed by a pair of P and V operations on semaphores
3. A program segment that has not been proved bug-free
4. A program segment that often causes unexpected system crashes
5. **A program segment where shared resources are accessed**
6. **Semaphore operations are atomic because they are implemented within the OS ----------?**
7. Hardware
8. Software
9. **Kernel**
10. CPU
11. **At a particular time of computation, the value of a counting semaphore is 7. Then 20 P (wait) operations and 15 V (Signal) operations were completed on this semaphore. The resulting value of the semaphore is:**
12. 42
13. **2**
14. 7
15. 12
16. **When the result of a computation depends on the speed of the processes involved there is said to be:**
17. Cycle stealing
18. **Race condition**
19. A Time lock
20. A deadlock

Soln: Race condition lead to the problem of synchronization.

1. **Suppose a processor does not have any stack pointer register. Which of the following statements is true?**
   * + - 1. It cannot have subroutine call instruction
         2. **It can have subroutine call instruction, but no nested subroutine calls**
         3. Nested subroutine calls are possible, but interrupts are not
         4. All sequences of subroutine call and also interrupts are possible
2. **Where does the swap space reside?**
3. RAM
4. ROM
5. **Disk**
6. On-chip cache
7. **Which of the following scheduling algorithms is non-preemptive?**
   1. Round Robin
   2. **First-In-First-Out**
   3. Multilevel Queue Scheduling
   4. Multilevel Queue Scheduling with feedback
8. **Match the following pairs:**
   * 1. **Virtual memory A. temporal locality**
     2. **Shared memory B. spatial locality**
     3. **Look- ahead buffer C. address translation**
     4. **Look-aside buffer D. mutual exclusion**

**a . i-B, ii-D, iii- A, iv-C**

b . i-B, ii-C, iii- D, iv-A

c . i-C, ii-D, iii- A, iv-B

d . i-C, ii-A, iii- D, iv-B

1. **When a thread waits indefinitely for some resource, but other threads are actually using it is called:**
   1. **Starvation**
   2. Demand paging
   3. Segmentation
   4. None of the above
2. **When there is enough memory to fit a process in memory, but the space is not contiguous, we need:**
   1. Internal fragmentation
   2. Virtual fragmentation
   3. **External fragmentation**
   4. Paging
3. **Piece of code that only one thread can execute at a time is called?**
   * + - 1. Mutual exclusion
         2. **Critical section**
         3. Synchronization
         4. All of the above
4. **Which memory allocation policy allocate the largest hole to the process?**
   1. Best-Fit
   2. **Worst-Fit**
   3. First-Fit
   4. None of the above
5. **Logical memory divided into blocks with the same size as frames are called:**
   1. **Pages**
   2. Frames
   3. Page Table
   4. Short-term