

BITS, Pilani-Dubai,Campus

Knowledge Village,Dubai

IIIrd Year FIRST Semester 2006-2007

Degree:B.E.(HONS) Branch:C.S.E

COURSE NO. : CS UC372

COURSE TITLE: Operating systems

Time :30 mts

Date : 16-11-2006

Total:15 Marks part-B

Answer all the questions(closed book) All questions carry equal marks :Quiz2

Answering and marking scheme

Q1.

```
struct lock {  
int held =0;  
}
```

```
void acquire(lock) {  
while(lock->held);  
lock->held=1;  
}  
void release(lock) {  
lock->held=0;  
}
```

Q2.In order to overcome the above difficulty what sort of improved design of above lock has to be carried out ?

Q3.Outline how will you implement lock using disable interrupts?

Q4.What is the main advantage and disadvantage of disable interrupt lock over spin lock?

Q5. With proper justification outline whether you use spin lock or disable interrupt lock for synchronzation purpose in an OS that handles multiple processors ?

- Q6. How semaphore is better than lock as a synchronization resource?
- Q7. What are the types of semaphores available and their usage scenarios ?
- Q8. What is the significance of Readers/writer problem? Justify whether any synchronization issue is there in the above problem.
- Q9. In an operating system why there is a need for multiple event queues ?
- Q10. Why and how mode switching is undertaken by the O.S ?
- Q11. What is the difference between mode switch and process switch ?
- Q12. The PCB of the process will get updated even for simple mode switch alone. Justify whether the above statement is true or false.
- Q13. With a simple example outline the problem faced due to concurrent execution of processes in a multi tasking OS?
- Q14. What are the requirements of the critical section ?
- Q15. What is meant by spin lock and why it is called so ?

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Time :30 mts

Date : 5-10-2006

Total:15 Marks

QUIZ I

Answer all the questions(closed book) All questions carry equal marks

- Q1. How a process differs from a program ?
- Q2. What is the need for process control block ?
- Q3. Distinguish between policy and mechanism with the help of an example .
- Q4. What is the main disadvantage of microkernel based operating system ?
- Q5. What is meant by page fault ?
- Q6. What are privileged instructions and in what mode they should be executed ?
- Q7. Outline how the OS switches the CPU among process A, process B, process C and a scheduler in main memory ?

Q8. Why there is a need for timer in a multitasking OS ?

Q9. What is meant by a system call and how it is handled by OS?

Q10. How an operating system using microkernel approach give rise to a distributed operating system ?

Q11. In layered OS, what sort of abstraction is provided by virtual memory manager to the layers above that?

Q12. Specify at least two important reasons for the need of timer in a multitasking operating system

Q13. What is the difference between blocked and ready state of a process ?

Q14. What are the important differences between RTOS and a desktop OS ?

Q15. What are the approaches used by system generation utility to port a prototype OS across multiple platforms ?