Operating systems exam entry questions:

What is an operating system and a kernel?
Define what a process and a thread is!
Define what a critical section is, what is mutual exclusion?
What are system calls and interrupts?
Define the concept of a semaphore!
Define scheduling in the context of processes! What is the difference between preemptive and non-preemptive scheduling?
What is the external and internal fragmentation in the context of memory management?
What is the relocation requirement in the context of memory management?
What is the MMU, what is its main purpose?
What is virtual memory? What is a page error?
What is the page table and TLB?
What is the difference between character and block device?
What is DMA?
What is RAID?
Define the concept of a file system, what is its main purpose?
What is an i-node?

Operating Systems exam questions:

1/b
Describe the methods of reading data from a hard disk and their problems. Describe the head positioning problem and the solution strategies. Describe and compare the different RAID levels.

2/b
Describe briefly the static and dynamic memory allocation techniques and strategies. Describe the segmentation virtual memory allocation. Describe the paging virtual memory allocation, strategies, methods, problems and solutions. Compare the segmentation and paging virtual memory allocation.

3/b
Describe the different scheduling methods in operating systems. Compare their different properties.

4/b
Describe the deadlock problem and the different avoiding, predicting, solution techniques.

5/b
Describe the different Input/Output methods of the operating systems. Describe their evolution and different properties. Describe the different buffering techniques. Describe in detail the DMA data transfer strategy.

6/b
Describe the different methods for communications between processes. Describe the problems. Describe mutual exclusion and different solution techniques.

7/b

Describe what multi-programming is. Explain processes, their states and models. Describe threads. Compare processes and threads.

8/b

Describe the purpose and structure of filesystems. Compare some well-known allocation algorithms (continuous, chained lists, memory table, i-node based)! Explain the ext2/3 filesystem in detail!