1. Advantages and disadvantages of Virtual Machines vs Containers?

2. How would you break out of a Container? How would you break out of a Virtual Machine?

3. I/O data transfer: What is DMA? What is polling? What is interrupt driven IO? What are the advantages / disadvantages?

Polling

DMA

Interrupt driven IO

4. What other operating system features have we not talked about in CS241?

5. What is a syscall? What is "int 80" (and why is it no longer relevant?)

6. What is Base and Bound memory segmentation? What are its limitations?

7. What is locality?

Review questions:

1. I request a 100MB file from a web server. The round trip time for a TCP packet is 10 ms. The bandwidth is limited to 10MB/s. What is the response time of the request?

2.. Deadlock: What are the four conditions for deadlock?

3. Return the length of a file that is known to exist and less than 2GB. Hint you know two ways to do this.

```
int file(long* result, char* path) {



    }
```

4. Name 3 schedulers. Explain the convoy effect. Which scheduler suffers from the convoy effect?

What is internal vs external fragmentation? Give examples of each. Does VM suffer from internal or external fragmentation?

What is Network Address Translation? Why is it useful?

With ext2 file system, using 32bit addressing and 4KB blocks, what is the additional overhead required to store a file of 10 MB? How many additional disk blocks are required?