Q.3] How do you recover disk metadata if you have a system crash?

Ans:-

**Section** **2.4 Persistence** talks about problem of data lost in 1st para and ways to handle it in last para

**Lecture 12+13+14 Persistence – Slide 84**

* One Major Challenge faced by the file system.
* Approaches taken.

1. **fsck** (file system checker)
2. **journaling** (write-ahead logging)

**Slide 94-102** Solution #1: The File System Checker (Fsck)

**Slide 103-114** Solution #2: Journaling

Read section 42.2,42.3 from the book especially the metadata journaling part.

Q.2. Understand memory mapping and different levels of mapping that can occur.

Refer Q.2. **Understand virtual memory and virtual to physical mapping.**

from previous midterm.

Also this [link](https://medium.com/@connorstack/how-does-an-os-enable-virtual-memory-696a8f75f274)

Q.5] Understand how I/O writes to disk in O.S?

**Solution:-**

Lecture 1 - Intro Slides

Slide 35

* Figure out where on disk this new data will reside
* Issue I/O requests to the underlying storage device

Also refer to slide 4 of lecture 12+13+14 Persistence, to know more about polling and interrupts or you can refer to this [link](https://www.cs.uic.edu/~jbell/CourseNotes/OperatingSystems/13_IOSystems.html)