# Answer Sheet

**Step 1: Basic File Information**

1. Make the changes required to fileInfo0.py to get fileInfo1.py as per the requirements. Show your code and run the script.

Demonstrate this by running the script and explaining your code during your lab.

1. Describe the **three different types of time information stored in the inode**. Which times are affected if you edit a file? Which times are affected if you change access permissions to a file?

|  |
| --- |
| Change time, modify time, access time.  Modify and access are affected when we edit a file.  Change time is affected when we edit a file. |

**Step 2: Links**

1. Explain the difference between Hard and Symbolic Links.

|  |  |  |
| --- | --- | --- |
| **Question** | **Symbolic Link** | **Hard Link** |
| What **file type** is each link identified as in your scripts? | Link | File |
| Explain why. | Symbolic link is a special file containing the file path of the source | A hard link references an inode |
| What do you observe with regards to the **inode numbers** of the target file and the new symbolic or hard link? | Different | Identical |
| Explain why. | A symbolic link references a file path | A hard link references the same inode as the source |

1. **What do you think is stored inside a symbolic link file**? What information about the symbolic link file can provide evidence about this (e.g. in the output of a shell command such as ls –l)?

|  |
| --- |
| The file path of the target. Size of the symbolic link file is the same as the length of the file path string. |

1. **Edit the target file of a hard and of a symbolic link.** Using the stat shell command see what effect the edit has on the three time types in the inode of the hard and of the symbolic link. **Explain what you observe.**

|  |
| --- |
| All 3 times are affected in the hard link as it references the same inode as the original file, therefore inheriting all data of the inode.  Nothing is affected in the soft link as it only references the file path. The soft link has a different inode as the original file, and as such the times aren’t changed in the soft link when we modify the original file. |

**Step 3: Getting information about links**

Make the changes required to fileInfo1.py to get fileInfo2.py as per the requirements. Show your code and run the script.

Demonstrate this by running the script and explaining your code during your lab.