1. What is the difference between source and sh commands?

Answer- The basic difference between source and sh is source generally works on the current working shell which executes the script in the parent shell itself with actual changes being done to the variables and shell process meanwhile sh uses a subshell separate from parent shell and executes process without changing any values to the main shell generally use for the subprocess when user don't wanted to affect parent processes.

2. Create two files a.txt and b.txt. Write a command to find the difference between their contents.

Answer -

```
strotjain@Strots-MacBook-Air sample3 % cat a.txt
abcdefg
strotjain@Strots-MacBook-Air sample3 % cat >> b.txt
abgdekl
strotjain@Strots-MacBook-Air sample3 % diff a.txt b.txt
1c1
< abcdefg
---
> abgdekl
strotjain@Strots-MacBook-Air sample3 %
```

Here is a small example to show that we have created two files a & b with a single line word in both since both the file have different content for which it will provide the first different character encountered.

```
strotjain@Strots-MacBook-Air sample3 % cat > b.txt
abcdefg
strotjain@Strots-MacBook-Air sample3 % diff a.txt b.txt
```

Now when we overwrite the file b as same content of file a now it will produce nothing which provide us instant that both the file are identical.

3. What is the difference between ls and lsof?

Answer- Ls actually list out all the file and directory which are there in our current File System along with their name and sizes but it does not show which file is in use and which file is not open

```
strotjain@Strots-MacBook-Air sample3 % ls
a.txt                   code.txt   prog1.txt program.txt
b.txt                   info.txt    prog2.txt
strotjain@Strots-MacBook-Air sample3 % ls -l
total 16
-rw-r--r--  1 strotjain  staff  8 Jul  2 16:01 a.txt
-rw-r--r--  1 strotjain  staff  8 Jul  2 16:07 b.txt
-rw-r--r--  1 strotjain  staff  0 Jul  2 13:49 code.txt
-rw-r--r--  1 strotjain  staff  0 Jul  2 13:49 info.txt
-rw-r--r--  1 strotjain  staff  0 Jul  2 13:49 prog1.txt
-rw-r--r--  1 strotjain  staff  0 Jul  2 13:49 prog2.txt
-rw-r--r--  1 strotjain  staff  0 Jul  2 13:49 program.txt
strotjain@Strots-MacBook-Air sample3 %
```

Here we can list down all file in the folder sample3

Lsof will list down all the files which are currently working and open in the whole file system or to a limited folder.

3. Write a single mkdir command to create nested directories: ./hello/world (neither should exist already).

Answer-3 To create a nested directories we actually need mkdir command along with p option to allow making parent directories when they don't exist.

strotjain@Strots-MacBook-Air sample3 % mkdir -p hello/world

strotjain@Strots-MacBook-Air sample3 % cd hello

strotjain@Strots-MacBook-Air hello % cd world
strotjain@Strots-MacBook-Air world %

4.How can you permanently set an environment variable in bash?

Answer - 4 The System wide environment variables are accessed anywhere throughout the system and remain persistent even if the devices shut down in that way we can say that an ENV is permanently set and to access any Enviroment variable we uses primitively shell named Bash.

sudo -H vi /etc/environment

This command will will make you the root user along with providing access to setup the environment variables.

Save it and when you log in again the variable will be serviceable.

5. A process is running on a port in your system. How can you:

- View which process is using the port?
- Kill that process from the terminal?

Answer-b) To kill the process we usually use pkill command to stop and clear the process actually each process is associated with the process Id an from that id we can execute the command pkill[signal][process_name] now pkill -91234 may be an possible command to stop the process.

Answer a) To view which process using the port we actually use lsof command we just need to know some port number on which we need to see what process are associated with it. Lsof -i:p //where p iss the port number it will list all the open processes which are associated with that port number.