1.

   grep Smith student.txt |**sort** -k 4 > smith.txt

2.
   a. We need provide location of bash sell. If location of bash is /bin/bash, first line of each script must start with #!/bin/bash.
   b. Since a shell script is a ASCII code, it is created as r w _ r_ _r_ _. We need to change it to executable by changing mode.
      chmod +x filename.sh

3.
   o **Static library:** if a process include a static library, then each copy of static library need to be loaded for each process.
   o **Shared library:** only one copy of a shared library need to be loaded into the memory. It is shared by multiple active processes.

4.

```
#!/bin/bash
# this task display a triangle
echo -n "Enter base of a triangle shape: "
read base
let even=base%2
if [ $even = 0 ]; then
     echo "expecting odd number"
     exit 1
fi

let height=($base-1)/2+1
let skip=$height-1

for i in $(seq 1 $height);
do
     let star=2*i-1
     for j in $(seq 1 $skip)
     do
          echo -n " "
     done
     for j in $(seq 1 $star)
     do
          echo -n "*"
     done
     echo ""
     let skip--
done
exit 0
```

5.

```bash
#!/bin/bash
n=1
sum=0

if [ $# -eq 0 ]; then
    echo " No Arguments"
    exit 1
fi

for n in $*;
do
    let t=n%2
    if [ $t -eq 1 ]; then
            continue
    fi
    let sum=sum+$n
done
echo "Sum of even number is $sum"

exit 0
```

6.

```bash
#!/bin/bash
# this shell display subdirectory in the current directory

for FILE in *
do
    if [ -d $FILE ]; then
        echo $FILE
    fi
done
exit 0
```