1.

Answer)
- Static Library: When a process includes a static library, a separate copy of the library is loaded for each process.
- Shared Library: Only one copy of a shared library needs to be loaded into memory, which is shared by multiple active processes.

2.

Answer)
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.

- $@ : all list of arguments

- $*: all list of arguments

- $0: shell script name

- $#: number of argument passed

- $?: save last exit status.

4.

```bash
#!/usr/bin/bash

# Check if any arguments are provided
if [ $# -eq 0 ]; then
  echo "Error: No arguments provided."
  exit 1
fi

# Initialize counters for even and odd numbers
evenCount=0
oddCount=0

# Loop through all the command-line arguments
for num in "$@"; do
  # Use the modulo operator with `let` for checking even/odd
  let "remainder = num % 2"
  if [ $remainder -eq 0 ]; then
    let "evenCount++"
  else
    let "oddCount++"
  fi
done

# Display the results
echo "Even numbers: $evenCount"
echo "Odd numbers: $oddCount"
exit 0
```

5.

```bash
#!/usr/bin/bash
# this task display a triangle
echo -n "Enter base of a triangle shape: "
read base
let even=base%2
if [ $even = 0 ] || [ $base -lt 3 ]; then
     echo "expecting odd number"
     exit 1
fi

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

#display upper half of Diamond
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
```

6.

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

7.

```
#!/usr/bin/bash
for filename in *; do
case $filename in
        *.c ) gcc -c "$filename" ;;
        *.cpp ) g++ -c "$filename";;
        *.txt) cat "$filename" ;;
        *) echo "$filename is not c or c++ or text code"

esac
done
exit 0
```