1. Perform encryption and decryption of a text file or a random string using DES algorithm with openssl command. [Implement and give a demonstration.]

```
echo "This is a secret message." > message.txt

openssl des -e -in message.txt -out message.enc -k pass123

openssl des -d -in message.enc -out decrypted.txt -k pass123

echo "Encrypt this string" | openssl des -e -a -k pass123 > string.enc

cat string.enc | openssl des -d -a -k pass123
```

2. Write a bash shell script to encrypt 20 files in one shot with the help of openssl command. [Take any encryption algorithm to perform this task.] [Implement and give a demonstration.]

```
#!/bin/bash
DIR="files"
mkdir -p encrypted

for i in {1..20}
do
  infile="$DIR/file$i.txt"
  outfile="encrypted/file$i.enc"

  echo "Encrypting $infile ..."
  openssl enc -aes-256-cbc -salt -in "$infile" -out "$outfile" -k pass123
done

echo "Encryption of all 20 files completed."
```

3. Write a brief description (What-Why-How formant) about the following commands:
   - df
     - df -h
   - fdisk
     - sudo fdisk /dev/sda
   - dmesg
     - dmesg | grep usb
   - crontab
     - crontab -e

- crontab -l

• fsck
  - sudo fsck /dev/sda1

4. Write a step-by-step process to connect two Desktop machines using ssh command. [Implement and give a demonstration.]

1. Install SSH on both machines
   sudo apt install openssh-server

2. 2. Start SSH service (Machine B – server)
   sudo systemctl start ssh

3. Find Machine B's IP address
   ip addr

4. From Machine A, test network connection
   ping 192.168.1.20

5. SSH into Machine B from Machine A
   ssh username@192.168.1.20

6. Verify login
   Hostname

7. Disconnect
   Exit

5. Write a step-by-step process how to connect two mobile devices using ssh command. [Implement and give a demonstration.]

1. Install Termux on Both Phones
   Termux

2. Install OpenSSH on Both Phones
On **both phones**, open Termux:
pkg install openssh

3. Start SSH Server on Phone B
Phone B acts as the SSH server:
sshd

4. Find Phone B's IP Address
ip addr
Look for something like:
inet 192.168.1.35

5. Get Phone B's SSH Login Username
In Termux, the username is:
whoami

6. Find Phone B's SSH Port
Termux SSH usually runs on **port 8022**.

7. Connect from Phone A to Phone B
On **Phone A** (client):
ssh -p 8022 u0_a123@192.168.1.35

Replace with actual username and IP.
If asked:
Are you sure you want to continue connecting? Yes

8. Verify Connection
Once connected:
hostname
pwd
ls

9. Disconnect
Exit

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