Surname, Name: Section: Student No:

Closed Book, closed note exam. You are required to write down commands with necessary arguments and options; and make sure that they work. Your script and output should match. Give the best result that you can give!

Each question worths 5 points unless otherwise stated.

Over 100 points is bonus.

Unless otherwise stated for question k, your answers as command must be in k.sh and output should in k.txt both should be in Answers directory.

SIGNATURE	Time of Submission:

1. copy everything in LabQ into Dir1 using rsync

   ```
   rsync -av .  ../Answers/Dir1
   ```

2. copy everything in LabQ into Dir2 using tar. Do not use an explicit tar file

   ```
   tar cf - .  | ( cd ../Answers/Dir2; tar xf - )
   OR tar cf - .  | tar xf - -C ../Answers/Dir2
   ```

3. copy all invisible directories in LabQ (on the surface not within directories) into Dir3

   ```
   cp -Rp .beta .delta ../Answers/Dir3 OR rsync -av .beta .delta ../Answers/Dir3
   ```

4. put all *.txt files (in LabQ) on the surface into TXT.zip in Dir4 and extract all files into Dir4

   ```
   ls *.txt | xargs zip ../Answers/Dir4/TXT  and cd ../Answers/Dir4; unzip TXT
   zip ../Answers/Dir/TXT *.txt  and ...
   ```

5. put all files and directories visible in LabQ into My.tar.bz2 in Dir5 , and extract directories ABC and Data into Dir5

   ```
   tar cjf ../Answers/Dir5/My.tar.bz2 *  and
   tar xvjf ../Answers/Dir5/My.tar.bz2 -C ../Answers/Dir5 Data ABC
   ```

6. Determine all programs related with network

   ```
   man -k network > ../Answers/6.txt
   ```

7. Consider all *.txt files in the current directory: (do not consider sub directories) - determine list of files containing word **net** case insensitive in file **7.txt**
   and combine them to obtain MYTXT1.txt (in Answers) (Bonus 3 pts)

   ```
   grep -iwl net *.txt > ../Answers/7.txt  and
   grep -iwl net *.txt | xargs cat > ../Answers/MYTXT1.txt
   ```

8. given A.txt delete empty lines obtaining **8.txt** (in Answers directory)

   ```
   grep -v ^$ A.txt > ../Answers/8.txt
   ```

9. Given A.txt obtain **9.txt** such that each line contains exactly one of **net** or **fox** case insensitive

   ```
   grep -i net A.txt | grep -iv fox > ../Answers/9.txt
   grep -iv net A.txt | grep -i fox >> ../Answers/9.txt
   ```

10. Consider all *.txt files in LabQ (including in sub directories), combine lines containing neither net nor fox, case insensitive in the file **10.txt**

    ```
    find .  -type f -name "*.txt" | xargs cat | grep -iv fox | grep -iv net > ../Answers/10.txt
    or find .  -type f -name "*.txt" -exec grep -iv net '{}'\ ; | grep -iv fox > ../Answers/10.txt

    find .  -type f -name "*.txt" | xargs egrep -hiv "net|fox" > ../Answers/10.txt
    ```

11. copy y.SH into Answers; and change permissions so that everybody can read and execute it, owner and group can change it, and it runs with owner and group rights. Use symbolic notation

    ```
    cp y.sh ../Answers; chmod a=rx,ug=ws ../Answers/y.SH
    ```

12. Create directory **temp** in Answers so that every body can create files in it, see all file names, but can not delete files not owned by herself/himself. Give permission or give necessary commands to setup the necessary permissions.

```
mkdir ../Answers/temp; chmod 01777 ../Answers/temp
```

13. unzip LabQ1.zip in Dir6 and work in Dir6/LabQ (3 pts each)

```
cd ../Answers/Dir6; unzip ../../LabQ2
```

- determine all empty files in Dir6 and write their names in Empty.txt (in Answers)
  ```
  find .  -type f -empty > ../Empty.txt
  ```
- determine files modified later than mail.txt and write their names in Yeni.txt (in Answers)
  ```
  find .  -type f -newer mail.txt > ../Yeni.txt
  ```
- delete all empty files
  ```
  find .  -type f -empty -delete
  ```

14. find all files under /usr/share whose size is bigger than 2M

```
find /usr/share -type f -size +2M > ../14.txt
```

15. find all empty directories under /etc (**Bonus: 3 pts - avoid "Permission Denied" if you can**)

```
find /etc -type d -empty 2>/dev/null > ../Answers/15.txt
```

16. i) copy AB.tar into Dir7
    ii) find all *.txt files which are older than **net.txt** (in LabQ) and append them into AB.tar in Dir7

```
find .  -type f -name "*.txt" -not -newer net.txt -exec tar rf ../Answers/Dir7/AB.tar
'{}'\;
```

17. create NAME.txt (with your name) containing your name and your birthday (anyway you wish) and upload into gizli rsync module in liste.ctis.bilkent.edu.tr. gizli module requires user ctis with passwd ctisxx

```
echo Mustafa Akgul > akgul.txt
echo May 10, 1948 >> akgul.txt
rsync -av akgul.txt ctis@liste.ctis.bilkent.edu.tr::gizli
passwd:  ctisxx
```

18. download contents of gizli module into Dir8

```
rsync -av ctis@liste.ctis.bilkent.edu.tr::gizli ../Answers/Dir8
passwd:  ctisxx
```

19. download contents of public module temp into Dir9

```
rsync -av liste.ctis.bilkent.edu.tr::tmp ../Answers/Dir9
```

20. copy AB.tar into Dir10 ; touch A.txt and aa.txt; and update aa.txt and A.txt in AB.tar in Dir10

```
cp AB.tar ../Answers/Dir10; touch A.txt aa.txt; tar --update -f ../Answers/Dir10
A.txt aa.txt
```

21. delete ankara.txt from AB.tar in Dir10

```
tar --delete -f ../Answers7Dir20/AB.tar ankara.txt
```

22. Given Dene-txt.gz find lines in Dene-txt containing at least one of ayse or elif, working directly with Dene-txt.gz

```
zegrep "ayse|elif" Dene-txt.gz > ../Answers/22.txt
```

23. copy Dene1.txt, Dene2.txt, Dene3.txt into Answers, compress Dene1 with gzip **most**, compress Dene2.txt with bzip2 **fast** and compress Dene3.txt with xz with default values.

```
cp Dene?.txt ../Answers;
gzip -9 ../Answers/Dene1.txt
bzip2 -1 ../Answers/Dene2.txt
xz ../Answers/Dene3.txt
```

24. Given AA.txt, obtain lines 21-50 into 24.txt and show line numbers of AA.txt

```
cat -n AA.txt | head -50 | tail -30 > ../Answers/24.txt
```