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.

1. write down conditions for a program to be **free software**. Be precise. write in 1.txt

   - to run without any restrictions, - study and modify the program for own needs,
   - share with others with or without money, - publish any changes you made

2. list ways you can get help for a program, say, xyz (in 2.txt)

   man xyz, info xyz, xyz -h, xyz --help, xyz,
   and documents in /usr/share/xyz, /usr/share/docs/xyz

3. Find all files in the current directory (LabQ) which contains letters **a** and **t**

   ls *a*t* > ../Answers/3.txt ; ls *t*a* >> ../Answers/3.txt (with duplicates)

   ls | grep a | grep t > ../Answers/3x.txt (without duplicates, using **grep**

4. find all files which starts with a , b or d and ends with w or t and contains c followed by k

   ls [abd]*c*k*[wt] > ../Answers/4.txt

5. copy everything in LabQ into Dir1 with cp . Keep owner and date info. term LabQ will not be copied but everything inside it (recursively)

   cp -Rp . ../Answers/Dir1/

6. copy directories ABC .gizli .beta and xetc into directory Dir2.

   cp -R ABC .gizli .beta xetc ../Answers/Dir2

7. copy all visible files in LabQ (on the surface not within directories) into Dir3

   cp * ../Answers/Dir3

8. copy all files in LabQ (on the surface not within directories) into Dir4

   cp -v .* * ../Answers/Dir4/ or cp .alpha .cokgizli * ../Answers/Dir4

9. Determine all programs related with disk

   man -k disk > ../Answers/9.txt

10. Determine all files related with programs **tar, ls, awk, cron, gimp**

    whereis tar > ../Answers/10.txt
    whereis ls >> ../Answers/10.txt
    whereis awk >> ../Answers/10.txt
    whereis cron >> ../Answers/10.txt
    whereis gimp >> ../Answers/10.txt

11. combine all *.txt, *.SH and *.tex files in LabQ (at the surface) into file ALL.TXT in Answers

    cat *.txt *.SH *.txt > ../Answers/ALL.TXT

12. Use **here document construct** to generate the file birthday.sh (a bash script) when executed will write to standard output: (actual values)
    Your Name
    Your High School
    Your Birthday

    ```
    cat > birthday.sh << END
    echo MyName
    echo My High School
    echo My Birthday
    END
    ```

    To Test: `chmod +x birthday.sh ; ./birthday.sh`

13. change date of file birthday.sh as your actual birthday

    ```
    touch -d "May 10 1995" birthday.sh
    ```

14. In a single command create directories XA XB XC XD each containing X Y Z , each of which containing W and T in directory Answers (we need to see directory and corresponding command); and copy file a.txt in each of T directories

    ```
    mkdir -p ../Ansers/X{A,B,C,D}/{X,Y,Z}/{W,T}
    ```

    ```
    cp a.txt ../Answers/XA/X/T
    cp a.txt ../Answers/XA/Y/T
    cp a.txt ../Answers/XA/Z/T
    cp a.txt ../Answers/XB/X/T
    ......
    cp a.txt ../Answers/XD/Z/T
    ```

15. Consider all *.txt files in the current directory: (do not consider sub directories)
    - determine total number of lines of all *.txt files

    ```
    wc -l *.txt | tail -1 > ../Answers/15.txt  OR cat *.txt | wc -l > ../Answers/15.txt
    ```

16. copy all *JPEG, *pdf and *txt files/directories starting with a and A into Dir5

    ```
    cp -R [aA]*.{JPEG,pdf,txt} ../Answers/Dir5
    ```

17. move all pdf , JPEG files and .gizli and xetc directories into Dir6

    ```
    mv *pdf *JPEG .gizli xetc ../Answers/Dir6
    ```

18. copy all hidden directories in LabQ into Dir7

    ```
    cp -R .beta .gizli ../Answers/Dir7
    ```

19. copy y.SH into Answers; and change permissions so that everybody can read and execute it, and runs with owners rights.

    ```
    cp y.SH ../Answers/ ; chmod 04755 ../Answers/y.SH
    ```

20. 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 temp
    ```

21. Create directory **Upload** in Answers so that everybody can upload a file, but can not see other files, and cannot delete files of other users. Give correct permissions

    ```
    mkdir ../Answers/Upload ; chmod 01733 Uploads
    ```