



These are the types of questions that you will find on the final exam. I have not included all possible topics, but I have included all possible types of questions. Note that you are expected to be able to read a short bash or Perl script and understand it.

1. A \_\_\_\_ is an operator that sends the standard output of one command to the standard input of another command.
  - a. verbar
  - b. pipe
  - c. environment variable
  - d. shell operator
2. The \_\_\_\_ is the part of the operating system that controls the hardware and software.
3. A good password should have which of the following properties:
  - a. be at least 12 characters
  - b. have both digits and alphabetic characters
  - c. have punctuation and control characters
  - d. be something related to your personal life, such as your sister's name
4. If my working directory is /data/yoda/b/student.accounts and I want to cat the file /data/yoda/a/userlist, what is the relative pathname that I should give to the cat command.
5. Which of the following directories are top-level directories in a standard UNIX installation?
  - a. bin
  - b. lib
  - c. dat
  - d. downloads
  - e. scratch
  - f. device
  - g. user
  - h. mode
6. Convert the following octal modes to permission strings.
  - a. 0654 \_\_\_\_\_
  - b. 0753 \_\_\_\_\_
7. Convert the following binary numeral to decimal:  
10110110011 \_\_\_\_\_
8. Convert the following decimal to binary:  
753 \_\_\_\_\_



9. (2%) A \_\_\_\_\_ is a precise and unambiguous procedure for solving a problem in a finite number of steps.
10. (4%) What is displayed by the following command, given that thefile has the following contents:
- ```
120 30 2030
7530
30 200 12
10 2.3005
3
$ sort thefile
```
11. (4%) Write a regular (not extended) grep pattern that will find all input lines that end in a string of at least 8 alphanumeric characters.
12. (4%) Write a grep pattern that will match any line containing the word ATOM at the beginning of the line.
13. Write a file glob that matches all files in the current working directory that start with the word "rand" and have exactly four letters or digits after it and then end in a .pl extension.
14. What is the output of this Perl script:
- ```
$s = 0;
$i = 1;
while ( $i <= 10 ) {
    $s = $s + $i;
    $i = $i + 1;
}
print "The sum of 1 through 10 is $s\n";
```
15. What is the output of this bash script:
- ```
#!/bin/bash
let s=0
for n in $*
do
    if [ 0 -lt $n ]
    then
        let sum=$s+$n
    else
        let sum=$s-$n
    fi
done
echo $s
```