Evaluation: 70 Questions **Name:** _____

Important Instructions

1. Read all the instructions and both sides of all pages.
2. Manage your time when answering questions on this test.
   Answer the questions you know, first.

Multiple Choice - 70 Questions - 20% of 30%

(Office use only: 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70)

1. If **a=1** and **b=1**, which **bash** command sequence correctly compares the two numbers as equal and prints **OK**?
   † **a**. `if [ $a -eq $b ] ; then echo OK ; fi`
   b. `if test a -eq b ; then echo OK ; fi`
   c. `if [ a = b ] ; then echo OK ; fi`
   d. `if ( a == b ) ; then echo OK ; fi`
   e. `if [ $a==$b ] ; then echo OK ; fi`

2. If variable **x** might contain nothing (a null value - defined but empty), which **bash** command sequence correctly tests for this and prints **OK**?
   † **a**. `if [ "$x" = "" ] ; then echo OK ; fi`
   b. `if [ $x -eq : ] ; then echo OK ; fi`
   c. `if [ $x -eq "" ] ; then echo OK ; fi`
   d. `if [ ''$x'' = '''' ] ; then echo OK ; fi`
   e. `if [ "$x" = * ] ; then echo OK ; fi`

3. If **a=aaa** and **b=bbb** then what is the output of the following sequence of **bash** commands: `if $a = $b ; then echo $a ; fi`
   † **a**. `bash: aaa: command not found`
   b. `test: aaa: integer expression expected`
   c. `test: $a: integer expression expected`
   d. `aaa`
   e. no output

4. If **a=ant** and **b=bat** then what is the output of the following sequence of **bash** commands: `[ $a = bat -o $b = bat ] ; echo $?`
   † **a**. `0`
   b. `1`
   c. the number 1 or 0 followed by another 1 or 0 on a new line
   d. `test: $a: integer expression expected`
   e. no output

5. If **a=ant** and **b=bat** then what is the output of the following sequence of **bash** commands: `[ $a = ant -a $b = ant ] ; echo $?`
   † **a**. `1`
   b. `0`
   c. the number 1 or 0 followed by another 1 or 0 on a new line
   d. `test: $a: integer expression expected`
   e. no output

6. What is the output of the following sequence of **bash** commands:
   `echo wc >wc ; wc wc >wc ; head wc`
   † **a**. `0 0 0 wc`
   b. `1 1 3 wc`
   c. `1 1 2 wc`
   d. no output
   e. `wc`

7. What is the output of the following sequence of **bash** commands:
   `echo hi >wc ; wc wc >hi ; cat hi`
   † **a**. `1 1 3 wc`
   b. `0 0 0 wc`
   c. `1 1 2 wc`
   d. no output
   e. `hi`

8. What is the output of the following sequence of **bash** commands:
   `date='Friday March 12' ; test date = date`
   † **a**. no output
   b. `Fri Mar 12 10:20:39 EST 2004`
   c. `1`
   d. `0`
   e. `test: too many arguments`

9. What is the output of the following sequence of **bash** commands:
   `f=1 ; touch f ; test ! -z $f ; echo $?`
   † **a**. `0`
   b. `1`
   c. the number 1 or 0 followed by another 1 or 0 on a new line
   d. `test: $f: integer expression expected`
   e. no output

10. What is the output of the following sequence of **bash** commands:
    `a=sky ; touch $a ; test -z $a ; echo $?`
    † **a**. `1`
    b. `0`
    c. `sky`
    d. `test: $a: integer expression expected`
    e. no output

11. What is the output of the following sequence of **bash** commands:
```
i=0 ; test $i = 00 ; echo $?
```
† **a**. **1**
b. **0**
c. the number 0 or 1 followed by another 0 or 1 on a new line
d. **test: $i: integer expression expected**
e. no output

12. What is the output of the following sequence of **bash** commands:
```
a=1 ; b=2 ; test $a -ge $b ; echo $?
```
† **a**. **1**
b. **0**
c. the number 1 or 0 followed by another 1 or 0 on a new line
d. **test: $a: integer expression expected**
e. no output

13. What is the output of the following sequence of **bash** commands:
```
x=1 ; y=2 ; test $x -le $y ; echo $?
```
† **a**. **0**
b. **1**
c. the number 0 or 1 followed by another 0 or 1 on a new line
d. **test: $x: integer expression expected**
e. no output

14. What is the **bash** shell output of this two-command sequence:
```
cd /etc/passwd && echo "in $(pwd)"
```
† **a**. **bash: cd: /etc/passwd: Not a directory**
b. **in /etc**
c. **in 0pwd)**
d. **in $(pwd)**
e. no output

15. What is the **bash** shell output of this two-command sequence:
```
cd /bin && echo "echo $(pwd)"
```
† **a**. **echo /bin**
b. **echo 0pwd)**
c. **echo $(pwd)**
d. **/bin**
e. no output

16. In an empty directory, what is the length of the longest file name created by the following **bash** shell two-command sequence:
```
var='a ab abc abcd abcde' ; touch '$var'
```
† **a**. 4 characters
b. 3 characters
c. 2 characters
d. 1 character
e. 13 characters

17. Which **bash** command sequence correctly searches for the **chars** and then prints **OK** if it is found inside the password file?
† **a**. **if grep chars </etc/passwd ; then echo OK ; fi**
b. **if [grep chars /etc/passwd] ; then echo OK ; fi**
c. **if test chars /etc/passwd ; then echo OK ; fi**
d. **if test chars = /etc/passwd ; then echo OK ; fi**
e. **if [test chars /etc/passwd] ; then echo OK ; fi**

18. If file **foo** contains nine lines, each of which is the one-digit line number of the line in the file (**1** through **9**), what is the output of this command:
```
cat foo foo | cat | tail -5 | head -1
```
† **a**. **5**
b. **6**
c. **7**
d. **8**
e. **9**

19. If file **foo** contains nine lines, each of which is the one-digit line number of the line in the file (**1** through **9**), what is the output of this command:
```
cat foo foo | sort -r | head -4 | tail -1
```
† **a**. **8**
b. **7**
c. **6**
d. **5**
e. **9**

20. If a **bash** shell script named **sky** contains the line:
```
if [ "$1" = '$2' ] ; then echo SAME ; fi
```
then which of the following command lines will produce **SAME** as output?
† **a**. **./sky '$2' cow**
b. **./sky cow cow**
c. **./sky "cow" 'cow'**
d. **./sky "$1" '$2'**
e. **./sky $2 $2**

21. A shell script named **bar** is executed as follows:
    ./bar 1 2 "3 4" 5
    Inside the script is the line: **echo "$3"**
    What is the output from this line?
† **a**. **3 4**
b. **2 3 4**
c. **"3**
d. **$3**
e. **1 2 3**

22. If **bar** is a script containing the line **TERM=vt100 ; export TERM**, what is the output of the following sequence of **bash** commands:
    TERM=linux ; ./bar ; echo $TERM
† **a**. **linux**
b. **vt100**
c. **bar**
d. **TERM**
e. **$TERM**

23. What is the **bash** shell output of this two-command sequence if run in a directory containing 123 files with names that are all the numbers from **1** to **123** inclusive: **glob="*" ; echo "$glob"**
† **a**. *****
b. **$glob**
c. **"$glob"**
d. the file names **1** through **123**
e. the file names **1** through **123**, surrounded by quotes

24. If **bat=12** and **cat=99** then which of the following **bash** command lines outputs only the word **hi** (and nothing else)?
† **a**. **[bat = bat] && echo hi**
b. **[bat -ne cat] && echo hi**
c. **[!bat = cat] && echo hi**
d. **[bat -eq 12] || echo hi**
e. **[bat!=bat] || echo hi**

25. How many arguments and options are there to the command:
    wc -l <infile
† **a**. One command line argument containing one option name.
b. Two arguments, one of which is a single option name and the other is a pathname.
c. Three arguments, one of which contains an option and one is a pathname.
d. A file name starting with a dash and an **<infile** switch option argument.
e. Two arguments, neither of which is an option.

26. Which correct **bash** command sequence below always outputs just the date only if the first argument is **both** not empty **and** a directory?
† **a**. **if [-d "$1" -a -s "$1"]; then date ; fi**
b. **if ["-s $1" && "-d $1"]; then date ; fi**
c. **if ["$1" -eq -f -a "$1" -eq -d]; then date ; fi**
d. **if [-s -a -d "$1"]; then date ; fi**
e. **if [-s && -d "$1"]; then date ; fi**

27. What is the **bash** shell output of this command sequence:
    true && echo Linux Rocks $?
† **a**. **Linux Rocks 0**
b. **Linux Rocks ?**
c. **Linux Rocks $?**
d. **Linux Rocks 1**
e. no output

28. What is the **bash** shell output of this command sequence:
    false && echo "hello there $?"
† **a**. no output
b. **hello there 1**
c. **hello there 0**
d. **hello there 1**
e. **hello there 0**

29. In response to the following **bash** shell command line:
    read var1 var2 var3
    which user keyboard input line below will assign the text **three** to the shell variable named **var3**?
† **a**. **one two three**
b. **var1=one var2=two var3=three**
c. **one,two,three**
d. **one:two:three**
e. **$var1="one" $var2="two" $var3="three"**

30. What is the output of this sequence of three shell commands:
    umask 762 ; touch newfile ; ls -l newfile
† **a**. **-------r-- 1 me me 0 Oct 1 1:12 newfile**
b. **--------wx 1 me me 0 Oct 1 1:12 newfile**
c. **------xr-x 1 me me 0 Oct 1 1:12 newfile**
d. **-rw-rw--w- 1 me me 0 Oct 1 1:12 newfile**
e. **-rwxrw--w- 1 me me 0 Oct 1 1:12 newfile**

31. What is the output of this sequence of three shell commands:
```
umask 457 ; mkdir newdir ; ls -ld newdir
```
† **a**. `d-wx-w---- 2 me me 512 Oct 1 1:12 newdir`
b. `d-w--w---- 2 me me 512 Oct 1 1:12 newdir`
c. `d-wx-w-rwx 2 me me 512 Oct 1 1:12 newdir`
d. `dr--r-xrwx 2 me me 512 Oct 1 1:12 newdir`
e. `dr-xr-xrwx 2 me me 512 Oct 1 1:12 newdir`

32. In an empty directory, what is the shell output of these three commands:
```
touch xx .x xy .y xz ; x='x* y*' ; echo "$x"
```
† **a**. `x* y*`
b. `xx xy`
c. `xx xy xz y*`
d. `$x`
e. `*x *y`

33. In an empty directory, what is the shell output of these three commands:
```
touch .1 .2 .3 11 12 ; a='.1* .2*' ; echo '$a'
```
† **a**. `$a`
b. `.1* .2*`
c. `'.1* .2*'`
d. `.1 .2`
e. `11 .1 12 .2`

34. How many arguments are passed to the command by the shell on this command line: `<bat bat -b "-a -r" >bat bat bat`
† **a**. `4`
b. `5`
c. `2`
d. `3`
e. `6`

35. Given my directory `dir` and my file `dir/bar` owned by me, which permissions allow me to change or create new content (data) in the file `dir/bar` but not delete the file?
† **a**. Permissions `500` on directory `dir` and `600` on file `dir/bar`.
b. Permissions `100` on directory `dir` and `100` on file `dir/bar`.
c. Permissions `200` on directory `dir` and `200` on file `dir/bar`.
d. Permissions `400` on directory `dir` and `400` on file `dir/bar`.
e. Permissions `600` on directory `dir` and `700` on file `dir/bar`.

36. Given my directory `dir` and my file `dir/bar` owned by me, which permissions allow me to delete the file `dir/bar` from the directory, but not change the content (data) in the file?
† **a**. Permissions `300` on directory `dir` and `500` on file `dir/bar`.
b. Permissions `100` on directory `dir` and `200` on file `dir/bar`.
c. Permissions `100` on directory `dir` and `100` on file `dir/bar`.
d. Permissions `300` on directory `dir` and `300` on file `dir/bar`.
e. Permissions `500` on directory `dir` and `400` on file `dir/bar`.

37. What is the link count of directory `dir` after this set of successful commands?
```
mkdir dir ; cd dir ; touch foo ; mkdir a b c
```
† **a**. 5
b. 3
c. 1
d. 2
e. 4

38. What is the link count of file `foo` after this set of successful commands?
```
rm foo ; touch foo ; ln foo bar
cp bar x ; ln x y ; ln bar z ; ln z a
```
† **a**. 4
b. 3
c. 1
d. 2
e. 5

39. Which of the following shell command lines displays all the names in the current directory that are exactly three letters (alphabetic) long (and nothing else)?
† **a**. `echo [a-zA-Z][a-zA-Z][a-zA-Z]`
b. `echo [a-zA-Za-zA-Za-zA-Z]`
c. `echo [azAZ][azAZ][azAZ]`
d. `echo [a,zA,Z][a,zA,Z][a,zA,Z]`
e. `echo ???`

40. Which of the following shell command lines displays the names in the current directory that are exactly three numeric digits long (and nothing else)?
† **a**. `echo [0-9][0-9][0-9]`
b. `echo [0-90-90-9]`
c. `echo [1-3][1-3][1-3]`
d. `echo [1-31-31-3]`
e. `echo ???`

41. If file **/a** contains 20 lines, and file **/b** contains 30 lines, then how many lines are in file **/c** after this sequence of shell commands:

```
sort /a /b >/c ; cat /a >>/b ; sort /c /b /a >/c
```

† **a**. **70**
b. **50**
c. **80**
d. **120**
e. no lines (empty file)

42. If file **/a** contains 40 lines, and file **/b** contains 60 lines, then how many lines are output by this command: **sort /a /b | cat /a | cat /b**

† **a**. **60**
b. **40**
c. **100**
d. **160**
e. **200**

43. What is in the file named **file** after this command sequence:

```
echo a >c ; echo b >>c ; mv c d >file
```

† **a**. nothing - **file** is empty - no data
b. **a** followed by **b**
c. **a**
d. **b**
e. no such file (nonexistent file)

44. What is the output of this command sequence:

```
echo bat >one ; echo sky | head -2 one
```

† **a**. **bat**
b. **sky**
c. **bat** followed by **sky**
d. **sky** followed by **bat**
e. an error message

45. If directory **/dir** contains these three four-character file names: **.123**, **.124**, **.???**, then what is the output of the following **bash** shell command line: **echo /dir/????**

† **a**. **/dir/????**
b. **/dir/.123 /dir/.124 /dir/.???**
c. **/dir/.123 /dir/.124**
d. **echo: /dir/????: No such file or directory**
e. no output

46. If directory **dir** contains only these five two-character file names: **a?**, **11**, **?1**, **1***, **.1**, then which shell command below will remove *only* the single two-character name **?1** from the directory?

† **a**. **rm dir/\??**
b. **rm dir/?1**
c. **rm dir/1***
d. **rm dir/*1**
e. **rm dir/??**

47. Which of the following **bash PATH** statements makes the most sense?

† **a**. **PATH=/bin:/usr/bin:/etc**
b. **PATH=/bin:/usr/bin:/etc/passwd**
c. **PATH=/bin/ls:/etc:/usr/bin**
d. **PATH=/bin:/bin/cat:/usr/bin**
e. **PATH=/bin/sh:/usr/bin:/etc:/bin**

48. Which of the following statements is true about this shell command line:

```
>bar zoom bar haven
```

† **a**. The command **zoom** sees two arguments.
b. The command **zoom** sees three arguments.
c. The command **bar** sees only two arguments
d. The command **bar** sees three arguments.
e. Error: The command name is missing from the command line.

49. Which command sequence below outputs only lines 10-15 of the Unix password file?

† **a**. **head -15 /etc/passwd | tail -6**
b. **tail -15 /etc/passwd | head -5**
c. **head -15 /etc/passwd | tail -5 /etc/passwd**
d. **head -10 /etc/passwd | tail -5 /etc/passwd**
e. **tail -10 /etc/passwd | head -15 /etc/passwd**

50. Which command sequence below does *not* generate an error message from the last command in the sequence?

† **a**. **mkdir one one/two ; rmdir one/two**
b. **mkdir foo ; ln foo bar**
c. **date >foo ; cp foo/. bar**
d. **cat /etc/passwd > mail idallen@ncf.ca**
e. **mkdir foo foo/bar ; rmdir foo**

51. If the file **bat** contained the word **foo**, what would be the **bash** shell output of this two command sequence:

```
PATH=/etc/passwd:/bin/ls:/bin/cat ; /bin/ls bat
```

† **a**. **bat**
b. **foo**
c. **/bin/ls: bat: No such file or directory**
d. **bash: /bin/ls: command not found**
e. no output

52. If **/bin/bat** is a program that outputs **hi** and **/usr/bin/bat** is a program that outputs **foo** what is the output of this shell command sequence:

```
PATH=/etc:/usr/bin:/bin ; bat
```

† **a**. **foo**
b. **hi**
c. **foo** followed by **hi**
d. **hi** followed by **mom**
e. **bash: bat: command not found**

53. Which of these commands makes a file owned by me, also executable by me?

† **a**. **chmod u+x ./myfile**
b. **chmod x+u myfile**
c. **chmod x=u ./myfile**
d. **umask 777 myfile**
e. **umask 111 myfile**

54. Which of these first lines will cause this executable file to be interpreted using the Bash shell?

† **a**. **#!/bin/bash**
b. **#/bin/bash**
c. **!#/bin/bash –u**
d. **!/bin/bash**
e. **/bin/bash –u**

55. Which command line below does not show any lines from inside the file **bat**?

† **a**. **ls bat**
b. **head bat**
c. **tail bat**
d. **more bat**
e. **less bat**

56. Which command line displays the contents of the Unix **passwd** file one page at a time?

† **a**. **less </etc/passwd**
b. **less | /etc/passwd**
c. **/etc/passwd >less**
d. **/etc/passwd | less**
e. **cat /etc/passwd >less**

57. Which line below is most likely to be the beginning of an error message?

† **a**. **echo 1>&2 "... "**
b. **echo 1<&2 "... "**
c. **echo 2>&1 "... "**
d. **echo 2<$1 "... "**
e. **echo 2>$1 "... "**

58. Which line below puts the count of the number of lines in the password file into the variable **foo**?

† **a**. **foo=$(wc –l </etc/passwd)**
b. **foo=$(cat –c /etc/passwd)**
c. **foo=[wc /etc/passwd | echo $1]**
d. **foo=[cat –l /etc/passwd]**
e. **foo=[grep –c /etc/passwd]**

59. If **/etc/passwd** is a file name, which of the following pathnames always leads to the same file?

† **a**. **/../etc/passwd**
b. **/etc/passwd/.**
c. **/etc/passwd/../..**
d. **./etc/passwd**
e. **/etc/../../passwd**

60. If my current working directory is **/home**, and my home directory is **/home/xx**, which of the of the following commands copies the Unix password file into my home directory under the name **foo**?

† **a**. **cp xx/../../etc/passwd xx/foo**
b. **cp xx/../etc/passwd ../home/xx/foo**
c. **cp ../etc/passwd ../xx/foo**
d. **cp ../home/xx/../etc/passwd ./xx/./foo**
e. **cp ../../etc/passwd /xx/foo**

61. If **bar** is an executable script containing the line **dog=bat** then what is the **bash** output of this sequence of three commands:

```
dog=cat ; ./bar ; echo "the '$dog' ate"
```

† **a**. **the 'cat' ate**
b. **the 'bat' ate**
c. **the '$dog' ate**
d. **the $dog ate**
e. **the 'dog' ate**

62. If **happy** were a file of text containing 50 different lines, what would be the output of this exact command line: **diff happy happy**

† **a**. no output
b. an error message because **diff** only allows one file name
c. an error message because **diff** doesn't allow the same file name twice
d. several lines, which are the lines that are different between the two files
e. the contents of file **happy** would be displayed

63. Which Unix command sequence deletes a directory and everything inside it?

† **a**. **rm -r dir**
b. **rm -all dir**
c. **rmdir -r dir**
d. **rmdir -all dir**
e. **deltree -all dir**

64. Which of the command lines below can generate a non-empty file?

† **a**. **ls /out >/out**
b. **sort -r /out >/out**
c. **tail -5 /out >/out**
d. **tr abc ABC </out >/out**
e. **grep -v /out /out >/out**

65. What is the **bash** shell output of this two command sequence:

```
PATH=/bin/ls:/bin/head:/bin/sh ; head nosuchfile
```

† **a**. **bash: head: command not found**
b. **bash: /bin/ls: command not found**
c. **ls: /bin/head: command not found**
d. **head: nosuchfile: No such file or directory**
e. **bash: /bin/sh: No such file or directory**

66. What is the output of this sequence of three shell commands:

```
echo x >abc ; ls >abc abc ; wc abc
```

† **a**. **1 1 4 abc**
b. **1 1 3 abc**
c. **1 1 2 abc**
d. **0 0 0 abc**
e. no output

67. How can you ask the **bash** shell to complete commands or file names for you?

† **a**. You can type the first part of the command or file name and press the **TAB** key.
b. You can type the first part of the command or file name and press the **ALT** key.
c. Type **[CONTROL]-[ALT]-[DEL]** and the shell will present a menu of commands.
d. Type **[CONTROL]-[D]** and the shell will present a menu of commands.
e. Type **[ALT]-[F2]** the shell will present a menu of commands.

68. Given this long listing:

```
drwxr-xr-x 448 me me 296 Dec 4 9:12 /dir
```

How many subdirectories lie immediately under **/dir**?

† **a**. 446
b. 448
c. 294
d. 296
e. there is not enough information shown to answer the question

69. What minimal permissions must you have on a directory to be able to execute successfully the command **ls .** from *inside* the directory?

† **a**. **r-x**
b. **--x**
c. **r--**
d. **-wx**
e. **rw-**

70. Select the correct **bash** shell order of command line processing:

† **a**. aliases, redirection, variables, globs
b. aliases, variables, redirection, globs
c. aliases, variables, globs, redirection
d. aliases, globs, variables, redirection
e. redirection, aliases, globs, variables

Answer Key - DAT 2330 – Ian Allen – Winter 2004 - DAT 2330 Unix Final - 30%

Office use only: 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70

```
  1. a                    41. a
  2. a                    42. a
  3. a                    43. a
  4. a                    44. a
    5. a                    45. a
    6. a                    46. a
    7. a                    47. a
    8. a                    48. a
  9. a                    49. a
 10. a                    50. a
 11. a                    51. a
 12. a                    52. a
   13. a                    53. a
   14. a                    54. a
   15. a                    55. a
   16. a                    56. a
 17. a                    57. a
 18. a                    58. a
 19. a                    59. a
 20. a                    60. a
   21. a                    61. a
   22. a                    62. a
   23. a                    63. a
   24. a                    64. a
 25. a                    65. a
 26. a                    66. a
 27. a                    67. a
 28. a                    68. a
   29. a                    69. a
   30. a                    70. a
   31. a
   32. a                  Count of a:  70  100%
 33. a
 34. a                    With 5 choices: 70
 35. a                      1 2 3 4 5 6 7 8 9 10 11
 36. a                      12 13 14 15 16 17 18 19
   37. a                    20 21 22 23 24 25 26 27
   38. a                    28 29 30 31 32 33 34 35
   39. a                    36 37 38 39 40 41 42 43
   40. a                    44 45 46 47 48 49 50 51
                            52 53 54 55 56 57 58 59
                            60 61 62 63 64 65 66 67
                            68 69 70
```



```
Macro .cmd splits: 35
Macro .ans splits: 0
```