

# WEEK 8 - Graded Assignment

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## Question 1

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Which of the following commands can be used to check the processor information your linux machine is running on? [MSQ]

- (a) `hwinfo`
- (b) `lshw`
- (c) `lspci`
- (d) `cat /proc/cpuinfo`
- (e) `cat /proc/partitions`

## Answer

(a), (b) and (d)

## Question 2

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Which of the following commands can be used to print the total amount of memory(in gigabytes) available on your linux machine? The output may or may not contain any string for unit(i.e. GB), but should print only one number in gigabytes that is the total memory available. [MSQ]

- (a) `hwinfo | grep "memory" | head -1 | cut -d ":" -f 2`
- (b) `free --gibi | awk 'BEGIN{FS=" "} FNR==2{print $2}'`
- (c) `free --gibi | head -1 | cut -d ":" -f 2`
- (d) `sudo dmidecode --type memory | grep "Maximum Capacity" | cut -d ":" -f 2`

## Answer

(b) and (d)

## Question 3

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Which command will change the prompt string to show **date, command number and current username followed by character "@" followed by complete hostname and finally followed by the string ":",** in the same sequence?

For example if the current username is "SC", complete hostname is "SC-HP-Probook", date today is "Tue Mar 08" and command number is "48" the prompt string should look like

```
Tue Mar 08 48 SC@SC-HP-Probook :$
```

- (a) `PS1="\d # \u \H :$"`
- (b) `PS1="\d \# \u \H :$"`
- (c) `PS1="\d \# \u@\H :$"`

(d) PS1="\d \# \u@\H :\\$"

## Answer

(d)

## Question 4

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How many times per day the below process is executed? [NAT]

```
0 20 * * 1-5 zip -r ~/backup/project_246_$(date -u +"%Y-%m-%dT%H:%M:%SZ").zip  
~/project_246/
```

## Answer

1

## Question 5

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Select all the days the below process is executed? [NAT]

```
0 20 * * 1-5 zip -r ~/backup/project_246_$(date -u "+%Y-%m-%dT%H:%M:%SZ").zip  
~/project_246/
```

- (a) Sunday
- (b) Monday
- (c) Tuesday
- (d) Wednesday
- (e) Thursday
- (f) Friday
- (g) Saturday

## Answer

(b), (c), (d), (e), (f)

## Question 6

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Suppose you have to send a good morning message to everyone at 6 am in the morning everyday. Assume the command `send-good-morning` will send the message to everyone. Select the job will do that.

- (a) `* */6 * * * send-good-morning`
- (b) `0 * * * * send-good-morning`
- (c) `6 0 * * * send-good-morning`
- (d) `* * * 6 0 send-good-morning`
- (e) `0 6 * * * send-good-morning`

## Answer

(e)

## Question 7

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Every device connected to the Internet has at least one IP address which indicates where traffic has come from. Each IP address has some associated port numbers for each transport protocol used for determining the correct receiving application. IP addresss and Port numbers are respectively

- (1) 32-bit nonnegative integer and 16-bit nonnegative integers
- (2) 32-bit nonnegative natural numbers and 16-bit nonnegative natural numbers
- (3) 16-bit nonnegative integer and 32-bit nonnegative integers
- (4) 16-bit nonnegative natural numbers and 32-bit nonnegative natural numbers

## Answer

(1) 32-bit nonnegative integer and 16-bit nonnegative integers

## Question 8

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Which command will give information on open network ports on the machine?

- (a) nslookup
- (b) whois
- (c) wireshark
- (d) netstat

## Answer

(d)

## Question 9

"test.tar" contains three files test1, test2 and test3. Choose the right command that will extract these files from "test.tar". **(MCQ)**

(1)

```
$ tar -cvf test.tar test1 test2 test3
```

(2)

```
$ tar -xvf test1 test2 test3
```

(3)

```
$ tar -xvf test.tar
```

(4)

```
$ tar -cvf test.tar
```

## Answer

3.

## Question 10

```
$ nslookup google.com
```

The above command is used to **(MCQ)**

(1) Retrieve information about a domain name such as its server and ip address.

(2) looks up number of pings to the domain name "google.com".

(3) Gets the DNS of the domain on google.com

(4) none of the above

## Answer

(1)

## Question 11

Match the following networking commands to its respective function.

(MCQ)

Option	Function
1. ifconfig	a. It is a network troubleshooting utility
2. ping	b. Used to Query DNS related information
3. dig	c. Display and manipulate route and network interfaces
4. traceroute	d. Checks connectivity between two nodes
5. wget	e. Downloads a file from internet

(1) 1—>c; 2—>d; 3—>b; 4—>a; 5->e;

(2) 1—>b; 2—>e; 3—>d; 4—>c; 5->a;

(3) 1—>e; 2—>d; 3—>c; 4—>a; 5->b;

(4) 1—>a; 2—>c; 3—>e; 4—>d; 5->b;

## Answer

(1) 1—>c; 2—>d; 3—>b; 4—>a; 5->e;

## Question 12

Match the following options of "tar" command to their use.

Option	Usage
1. x	i. use gzip
2. v	ii. name of the archive file
3. f	iii. extract files from an archive
4. z	iv. verbosely list files that are processed

(a) 1-a, 2-c, 3-d, 4-b

- (b) 1-c, 2-d, 3-a, 4-b
- (c) 1-d, 2-c, 3-a, 4-b
- (d) 1-c, 2-d, 3-b, 4-a

Answer

(d)

Question 13

Contents of file1

```
aaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaa
bbbbbbbbbbbbbbbbbbbbbbbbbbbbbbbb
cccccccccccccccccccccccccccccccc
dddddddddddddddddddddddddddddddd
eeeeeeeeeeeeeeeeeeeeeeeeeeeeeeee
fffffffffffffffffffffffffffffffff
```

Contents of file2

```
Wj^rofdOhZO[giJYBHMDYVoqCGfREi[MTmF`
FHWf]eaUIqJXCkLnYTmfOCVnc\ZMDdlrcp[D
`EelM]krNNB^MIJmDniBW]JlWV`k^YmGBbAV
PICXGELJh[Xmmid_fen`E\Xf]Y]kCoRkXEKD
bDfRfJmolQbTVJDVbWSfoTqODfYkaNjHKf]_
[SmrlE\\l]ZTYQeHjKJkFETO]LDhHVValIqD
```

Note that both file1 and file2 have same size and number of characters. Both the files are compressed using the utility gzip to file1.gz and file2.gz respectively.

Choose the correct statement.

- (a) The size of file1.gz will be greater than file2.gz
- (b) The size of file1.gz will be lesser than file2.gz
- (c) The size of file1.gz will be the same as the size of file2.gz
- (d) The size of file1.gz will always greater than file2.gz because file1 have simple patterns.

Answer

(b)

Question 14

Below are the contents of the file "abcdef", where each line has 36 characters.

```
aaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaa
bbbbbbbbbbbbbbbbbbbbbbbbbbbbbbbb
cccccccccccccccccccccccccccccccc
dddddddddddddddddddddddddddddddd
eeeeeeeeeeeeeeeeeeeeeeeeeeeeeeee
fffffffffffffffffffffffffffffffffff
```

What will be the size of the file in bytes when it is compressed using bzip2? [NAT]

Answer

Range: From 50 to 60

Question 15

Choose the command to list all the empty files and delete them. [MSQ]

- (a) find . -type f -delete
- (b) find . -type f -empty -delete
- (c) find . -type f -empty -exec rm {} \;
- (d) find . -type f -empty | xargs rm

Answer

(b), (c), (d)

Question 16

Three Hard disk drives of capacity 456 Gb, 564 Gb and 768 Gb are connected in RAID 0. What is the equivalent storage capacity of the RAID arrangement?

- (1) 456 Gb
- (2) 768 Gb
- (3) 1368 Gb
- (4) 2304 Gb



## Answer

(3) 1368 Gb

## Question 17

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A data centre uses old recycled small size disk drives as a cost cutting measure. The downside in using recycled disk drives is that each drive can handle only one query at a time. Which of the following RAID configurations should the data centre deploy to achieve better performance(read speeds) and for data and sustain at least one disk failure without losing data? [MSQ]

(1) RAID 0

(2) RAID 1

(3) RAID 4

(4) RAID 6

## Answer

(3) and (4)

## Practice Problems Week 8

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### Problem 1

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Which of the following ports are **registered** ports?

(1) 0 – 1023

(2) 1024 – 49151

(3) 49152 – 65535

(4) 0 - 65535

## Answer

(2) 1024 – 49151

### Problem 2

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*Multiple correct answers are possible for this question.*

The command used to find your IP address in Ubuntu is;

**(MSQ)**

- (1) ifconfig -a
- (2) ip add
- (3) give ip
- (4) hostname -l

## Answer

- 1. ifconfig -a
- 2. ip add
- 3. hostname -l

## Problem 3

dig is a DNS lookup utility. Match the options of the dig command to its respective function.  
(MCQ)

Option	Function
1. -4	a. Print the version number and exit.
2. -m	b. Print query times in microseconds instead of milliseconds
3. -u	c. Uses IPv4 only
4. -v	d. Enable memory usage debugging.

- (1) 1→c; 2→d; 3→b; 4→a;
- (2) 1→b; 2→a; 3→d; 4→c;
- (3) 1→b; 2→c; 3→a; 4→d;
- (4) 1→a; 2→c; 3→b; 4→d;

## Answer

- 1. 1→c; 2→d; 3→b; 4→a;

## Problem 4

Choose the command which will print all the directories within the current directory, whose names starts with the letter 'K' and are accessed in last two days.

- (a) find /home -type d -mtime +2 -print
- (b) find . -type l -mtime +2 -print

(c) `find /home -type d -atime +2 -name 'K*' -print`

(d) `find . -type d -atime -2 -name 'K*' -print`

## Answer

(d)

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## Problem 5

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Suppose a data centre wishes to configure 3192 \* 2 Tb hard disk drives in RAID 6 (1+6) configuration. The storage capacity of a equivalent disk drive is

(1) 3190 Tb

(2) 6364 Tb

(3) 6380 Tb

(4) 3192 Tb

## Answer

(1) 3190 Tb

