

UNIVERSITI TUNKU ABDUL RAHMAN

ACADEMIC YEAR 2017/2018

APRIL EXAMINATION

UEEN3113/UEEN3413 SERVER CONFIGURATION AND MANAGEMENT

THURSDAY, 3 MAY 2018

TIME : 9.00 AM – 11.00 AM (2 HOURS)

BACHELOR OF SCIENCE (HONS) SOFTWARE ENGINEERING
BACHELOR OF ENGINEERING (HONS) ELECTRONICS
(COMPUTER NETWORKING)

Instructions to Candidates:

This question paper consists of THREE (3) questions in Section A and TWO (2) questions in Section B.

Answer **ALL** questions in **Section A** and **ONLY ONE (1)** questions in **Section B**.
Each question carries 25 marks.

Should a candidate answer more than ONE (1) questions in section B, marks will only be awarded for the FIRST questions in that section in the order the candidate submits the answers.

Candidates are allowed to use calculator.

Answer questions only in the answer booklet provided.

UEEN3113 / UEEN3413 SERVER CONFIGURATION AND MANAGEMENT**SECTION A: Answer all questions.**

- Q1. (a) There are 3 disks, namely D1, D2 and D3, configured as RAID 4, where D3 is the parity disk.
- (i) Suppose that a strip in D2 is updated. Explain how the new parity bit can be calculated. Show the relevant steps in your explanation. (8 marks)
- (ii) Explain a possible performance issue in RAID 4. (3 marks)
- (b) RAID 6 is able to regenerate data even 2 data disks failed. Explain how this feature is achieved in RAID 6. (3 marks)
- (c) A company is planning to open a few more branches in various regions. Explain how client-server model can be beneficial to the company. (11 marks)
[Total : 25 marks]
- Q2. (a) Illustrate **FIVE (5)** focus areas in IT governance under the COBIT framework using a diagram and briefly describe the function of each focus area. (8 marks)
- (b) The COBIT framework describes there is a need for a control framework for IT governance. Describe what does this control framework define. (6 marks)
- (c) The need of IT governance is driven by issues in project or even failure. Explain **FOUR (4)** issues that drive to the need of IT governance. (11 marks)
[Total : 25 marks]

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- Q3. (a) Monitoring connection established is important to identify suspicious connection. Write a command that will display all ports that are listening and connected, for TCP and UDP. (3 marks)
- (b) Write a command to display IPv6 routing table. (4 marks)
- (c) A server might be installed with more than 1 network interface card.
- (i) Write a command to display all available interfaces. (1 mark)
- (ii) Write a command to capture packets from `eth0` and store to a file named `today.pcap`. (3 marks)
- (iii) Write a command to read packets from port 22 on `eth1`. (3 marks)
- (d) Figure 1 is the template of `dhcp.conf`. Configure the DHCP server based on the following information.
- server IP: 192.168.1.103/24
 - server hostname: server.utar.edu.my
 - dynamic IP range: 192.168.1.140 – 192.168.1.200
 - broadcast address: 192.168.255
 - lease time: 1000 - 6000

Rewrite the `dhcp.conf` with necessary changes based on the information given. (11 marks)

```
#subnet                netmask                {
#range ;
#option domain-name-servers ;
#option domain-name ;
#option routers ;
#option broadcast-address ;
#default-lease-time ;
#max-lease-time ;
#}
```

Figure 1: `dhcp.conf`

[Total : 25 marks]

UEEN3113 / UEEN3413 SERVER CONFIGURATION AND MANAGEMENT**SECTION B: Answer ONLY ONE question.**

- Q4. (a) The company that you are working for is using Linux operating system. All users added should have a document about the company, namely `Manual.pdf`, in their home directory. Whenever a new user is added, this document will be copied automatically into the new user's home directory.
- (i) Write a command to copy `Manual.pdf` into the appropriate directory so that it will be copied automatically into new user's home directory when new user is added. Assume that `Manual.pdf` is in the current working directory. (3 marks)
 - (ii) Write a bash script that performs the following actions:
 - 1. add a new user with default password `com12345`. The user name will be passed to the script as parameter from command line.
 - 2. change the ownership of `Manual.pdf` to the new user. (9 marks)
 - (iii) Change the file mode bits of the bash script in part Q4(a)(ii), using the octal digit approach, so that it is only executable by the owner. Users in the same group as the owner can read only and other users will not be granted with any permission. Assume that the script is named as `fastadd` and it is in the current working directory. (2 marks)
 - (iv) After a new user is added, the user is allowed to login through SSH. Assume that SSH service is running. Explain steps to enable an user to login through SSH, include the appropriate commands in your explanation as well. (8 marks)
- (b) Write a command to check whether `mysql` is running. (3 marks)
- [Total : 25 marks]

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- Q5. (a) You are assigned to manage apache webserver and receive a request to setup a virtual host for domain `newtry.com`. Assume that apache is currently running without issue. Explain the procedures to setup the virtual host. Include relevant commands for configuration in your explanation. (13 marks)
- (b) Linux user can always schedule the execution of commands using `cron`.
- (i) Write the command to edit the schedule. (2 marks)
- (ii) Write the `cron` entry to copy Data directory in Ken's home directory to Backup directory which is also in Ken's home directory. The operation should start at 1AM. (5 marks)
- (c) Create a bash script that will copy a specified user's home directory to `/tmp/retain` directory before the user and user's home directory is deleted from system. User name will be passed in as parameter. (5 marks)
- [Total : 25 marks]
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