Sirindhorn International Institute of Technology
Thammasat University

Final Exam: Semester 2, 2011

Course Title: ITS332 Information Technology Laboratory II

Instructor: Steven Gordon

Date/Time: Tuesday 3 April 2012; 9:00–12:00

Instructions:

- This examination paper has 21 pages (including this page).

- Conditions of Examination: Closed book; No dictionary; Non-programmable calculator is allowed

- Students are not allowed to be out of the exam room during examination. Going to the restroom may result in score deduction.

- Students are not allowed to have communication devices (e.g. mobile phone) in their possession.

- Write your name, student ID, section, and seat number clearly on the front page of the exam, and on any separate sheets (if they exist).

- Assume the user in all questions has administrator privileges (that is, you can ignore the need for `sudo`).

- Reference material at the end of the exam may be used.

ITS332 Final Exam Hints, Semester 2, 2011

- 3 hour exam (but you should be able to complete much faster)
- Don't need a calculator.
- Covers entire semester, all 9 labs
- 11 questions, each with multiple parts
- 100 marks in total
- Reference Material is provided as on next pages
- Use past exams for practice.

Reference Material

Below is the syntax of commonly used commands. The values that the user must choose are given enclosed in < and >. Optional fields are enclosed in [and]. You may use this information in your answers.

```
ifconfig [<interface>] [up | down]
ifconfig <interface> <ipaddress> netmask <subnetmask>
ping [-c <count>] [-s <packetsize>] [-i <interval>] <destination>
tracepath <destination>
nslookup <domain> [<dnsserver>]
route [-n]
route add -net <netaddress> netmask <subnet> [gw <gateway>] [dev <interface>]
route del -net <netaddress> netmask <subnet> [gw <gateway>] [dev <interface>]
route add default gw <gateway>
arp [-n]
dhclient [<interface>]
tcpdump [-i <interface>] [-s <packetsize>] [-w <file>]
wget <url>
nc <ip> <port>
nc -l <port>
apache2ctl [start | stop | restart]
htpasswd <passwordfile> <username> [-b <password>]
iptables -A <chain> [<options>]
  where <options> include:
    [-s <sourceip>] [-d <destip>] [-i <ininterface>] [-o <outinterface>]
    [-p <protocol>] [--sport <sourceport>] [--dport <destport>]
    [-j <action>]
iptables -D <chain> [<options>]
iptables -L <chain>
iptables -F <chain>
  where <chain> may be: INPUT | OUTPUT | FORWARD
```

Commonly used files and directories are listed below. You may use this information in your answers.

```
/etc/hosts
/etc/resolv.conf
/etc/network/interfaces
/etc/services
/etc/protocols
/var/lib/dhcp3/dhclient.leases
/proc/sys/net/ipv4/ip_forward
/var/www/
/etc/apache2/sites-available/default
```

Port numbers used by common applications include:

20 FTP data transfer

21 FTP connection control

22 SSH, secure remote login

23 TELNET, (unsecure) remote login

25 SMTP, email transfer between servers

53 DNS, domain name lookups

67 DHCP server

80 HTTP, web servers

110 POP3, client access to email

123 NTP, network time

443 HTTPS, web servers with secure access

631 IPP, Internet printing

Protocol numbers for commonly used transport protocols include:

1 ICMP

2 IGMP

6 TCP

17 UDP

33 DCCP

89 OSPF

Status codes and their meaning for common HTTP responses include:

100 Continue Client should continue to sent the request

200 Ok Requested content is included in response

301 Moved Permanently This and all future requests should be redirected to the given URL

304 Not Modified Requested content has not been modified since last access

401 Unauthorized Requested content requires authentication that has not been provided or is incorrect

403 Forbidden Request is ok, but not allowed to access the requested content

404 Not Found Requested content could not be found on server

503 Service Unavailable Requested server is currently unavailable