



**NAMIBIA UNIVERSITY  
OF SCIENCE AND TECHNOLOGY**

**FACULTY OF COMPUTING AND INFORMATICS**

**DEPARTMENT OF COMPUTER SCIENCE**

<b>QUALIFICATION:</b> BACHELOR OF COMPUTER SCIENCE	
<b>QUALIFICATION CODE:</b> 07BACS	<b>LEVEL:</b> 7
<b>COURSE:</b> INTERNET AND INTRANET SYSTEMS ADMINISTRATION	<b>COURSE CODE:</b> IIS711S
<b>DATE:</b> JUNE 2019	<b>SESSION:</b> 1
<b>DURATION:</b> 2 HOURS	<b>MARKS:</b> 50

<b>FIRST OPPORTUNITY EXAMINATION QUESTION PAPER</b>	
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**THIS QUESTION PAPER CONSISTS OF 4 PAGES**  
(Excluding this front page)

**INSTRUCTIONS**

1. Answer **all questions in Section A and B.**
2. Write all your answers in the answer booklet provided and number every question.
3. Please, ensure that your writing is **legible, neat and presentable.**
4. Marks/scores per question are given in square brackets [ ].
5. Do not use or bring into the examination venue books, programmable calculators, mobile devices and other material that may provide you with unfair advantage. Should you be in possession of one right now, draw the attention of the examination officer or invigilator.
6. All things that should **not** be marked, e.g. any "rough work", have to be crossed out unambiguously.

## SECTION A

### 1. True or False

- (a) Community strings is the authentication type used by SNMPv3. [1]
- (b) RADIUS and TACACS+ are client/server AAA protocol. [1]
- (c) Hierarchical File System Plus is a file system used by Apple Macintosh computers.[1]
- (d) If you have a 16Gig flash disk and it is formatted with fat32 file system. You cannot copy an image file of size 8 Gig. [1]
- (e) XFS is one of the supported file systems on CentOS 7. [1]
- (f) Both samba users and Unix accounts are stored in the same file. [1]
- (g) Hyper-V is a Microsoft software for creating virtual machines and virtual switches. [1]
- (h) Default configuration file for squid is located in `/var/spool/squid` folder. [1]
- (i) If I have a scope of 192.168.0.10 – 192.168.0.254 I can use an IP address of 192.168.0.3 on a host and it can work. [1]
- (j) In Windows Server 2012 anonymous ftp is disabled by default. [1]
- (k) Both + and @ symbols are used to refer to a group in samba share configurations. [1]
- (l) Virtual hosting is used when you want to host several websites from one Web Server. [1]

## SECTION B

2. (a) What do you understand by a journaled file system? [3]

(b) Which file system started to support journaling in Linux? [2]

3. A port scan was done in the network. The results for the port scan are shown in the table below:

	Port	Protocol	State	Service
1	443	tcp	closed	https
2	110	tcp	filtered	pop3
3	143	tcp	open	imap
4	22	tcp	open	ssh
5	995	tcp	closed	pop3s
6	993	tcp	closed	imaps
7	23	tcp	closed	telnet
8	53	udp	open	domain

(i) What do the states "closed" and "filtered" mean? [4]

(ii) What can you do to open 23? [2]

(iii) Is it possible to change the default port for ssh to 80? Justify your answer. [2]

(iv) Give one example of a service that listens to a port in dynamic/private range. [1]

4. You can monitor daemons or ports either in real-time or historical. Give a brief description about historical monitoring. [2]

5. (a) Give one example of SNMP monitoring software and state the default SNMP port. [2]

(b) List SNMP version(s) available. Compare and contrast SNMP's latest two versions. [5]



6. Use `/etc/squid/squid.conf` and `/etc/squid/nogo.txt` files given below to answer this question. Configuration files below are numbered for easy referencing.

**/etc/squid/squid.conf**

```
1. http_port 3128
2. acl SSL_ports port 443 563
3. acl Safe_ports port 80      # http
4. acl Safe_ports port 21      # ftp
5. acl Safe_ports port 443 563 # https, snews
6. acl CONNECT method CONNECT
7. acl manager proto cache_object
8. acl all src 0/0
9. acl manager proto cache_object
10. acl nogo url_regex -i "/etc/squid/nogo.txt"
11. acl local_net src 192.168.178.0/255.255.255.192
12. acl business_hours time T W F A 8:00-16:00

13. log_icp_queries on
14. http_access allow local_net business_hours
15. http_access deny nogo
16. #http_access allow local_net
17. http_access deny !Safe_ports
18. http_access deny !business_hours
19. http_access deny CONNECT !SSL_ports

20. cache_dir ufs /var/spool/squid 3000 16 256
21. cache_effective_group squid
22. cache_mgr station admin
23. unique_hostname station
24. visible_hostname station35.example.com
```

**/etc/squid/nogo.txt**

- a. www.yahoo.com
- b. www.google.com
- c. home
- d. national.org
- e. cs.example.com

- (a) You are attending evening lessons for Linux system administration course and you were given the following link to read more on Linux: [www.linuxhomenetworking.com](http://www.linuxhomenetworking.com). Every time you try to access the site, you get the error:

*"The proxy server is refusing connections."*

Why is the system behaving like this and how are you going to resolve it? [4]

- (b) The CEO received an important email on Wednesday at 4:16pm to check the programme for annual general meeting on <http://mycompany.com/agenda> and forwarded it to the secretary to check the programme. When the secretary tries to check the programme she got the following message:

*"The proxy server is refusing connections."*

She called you as the systems administrator to check her computer. What is causing this problem and how are you going to solve it. [4]

- (c) On Wednesday night, the secretary received some news that their end of year results are out and they can check them on <http://www.nust.na/kiosk>. The following day she tried to access the results at work but no luck the whole day and unfortunately, the systems administrator was off duty. You were hired to resolve the problem. State what the problem was and how to solve it. [3]

- (d) Two employees joined the company and you configured their machines with the following IP Addresses:

**PC1: IP=192.168.178.60/255.255.255.192 Gateway=192.168.178.1**

**PC2: IP=192.168.178.70/255.255.255.192 Gateway=192.168.178.1**

You discovered that PC1 was able to access the internet and PC2 was **unable** to access the internet. The whole week PC2 was giving the following error:

*"Access Denied. Access control configuration prevents your request from being allowed at this time."*

What can you identify as the problem for PC2 not to connect to internet and what will be your solution? [4]

\*\*\* END OF QUESTION PAPER. GOOD LUCK \*\*\*