JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE AND TECHNOLOGY

SCHOOL OF INFORMATICS AND INNOVATIVE SYSTEMS

UNIVERSITY EXAMINATION FOR THE DEGREE OF BACHELOR SCIENCE IN SECURITY AND FORENICS, BACHELOR SCIENCE INFORMATION COMMUNICATION TECHNOLOGY, BACHELOR SCIENCE BISINESS INFORMATION SYSTEM.

4ᵗʰYEAR 2ᴺᴰ SEMESTER 2020/2021 ACADEMIC YEAR

MAIN CAMPUS

COURSE CODE: IIT 3441

COURSE TITLE: ADVANCED LINUX /UNIX SYSTEM ADMINISTRATION

EXAM VENUE: **STREAM:CSF/ICT/BIS**

DATE: **EXAM SESSION:**

TIME: 2.00 HOURS

INSTRUCTIONS:

1. **Answer Question 1 (Compulsory) and ANY other two questions**
2. **Candidates are advised not to write on the question paper**
3. **Candidates must hand in their answer booklets to the invigilator while in the examination room**

QUESTION ONE [30 MARKS]

a) Describe what you understand by the following terms in relation to open source email system **(6marks)**

    i.   Postfix
    ii.   Dovecot
    iii. Clam AV

b) Briefly explain the difference between a user agent (MUA), a delivery agent (DA). Then explain the difference between a mail transport agent (MTA) and a mail submission agent (MSA). **(4marks)**

c) Explain the two kinds of servers handle incoming e-mail messages? **(4marks)**

d) What do you understand by the term BIND what function does it serve? **(2marks)**

e) State two ways in which you would query a DNS Server **(2marks)**

f) state the three standard format mail box delivery formats that postfix can work with **(3marks)**

g) What is the difference between an authoritative and a non-authoritative answer to a DNS query? How could you ensure that an answer was authoritative? **(5marks)**

h) Explain what an MX record is. Why are MX records important for mail delivery?

(2 marks)

i) What is the difference between an authoritative and a non-authoritative answer to a DNS query? How could you ensure that an answer was authoritative? **(3marks)**

j) How would you Perform System Upgrade in CentOS? **(1mark)**

QUESTION TWO [20 MARKS]

a) By aid of diagram explain the concept of traditional vs virtual server concept **(8marks)**

b) What is a slave DNS what critical function does it server within the internet environment? (**2marks**)

c) From the Terminal windows notice the difference in curser symbol "$" and "#" what do they entail **(2marks)**

d) From the Terminal windows notice the difference in curser symbol "$" and "#" what do they entail **(2marks)**

e) All firewalls work only on inbound traffic; they do not limit or block outgoing traffic is this statement true or false justify your answer **(2marks)**

f) State and explain the two types of mail clients clearly bring out their differences **(4marks)**

QUESTION THREE [20 MARKS]

a) Explain the Three important things that server virtualization would offer in an organization infrastructure setup   (6marks)

b) Explain some of the important feature a virtual machine would offer for a linux server environment?   (6marks)

c) Explain at least three Economic Reasons that you would gain from Virtualization?   (6marks)

d) How many virtual machines can you run on a given host?   (2marks)

QUESTION FOUR [20 MARKS]

a) At the core of an operating systems is the kernel which interfaces with the mangers to make a computer system functional state and elaborate the functions associated with this managers   **(14marks)**

b) What do you understand by the term server sprawl?   **(2marks)**

c) What the difference between a host and guest OS?   **(2marks)**

d) Explain how you would access webmin on a linux server.   **(2marks)**

QUESTION FIVE [20 MARKS]

a) State and explain the two types of mail clients clearly bring out their differences**(4marks)**

b) What purpose does **dig** and **nslookup** serve.   (**2marks**)

c) Distinguish between open source and closed source, freeware and shareware.   (**4marks**)

d) You want to change the hostname of your server from "localhost.locadomain" to: "server.csfictbis.co.ke". To do so, you need to edit a file in the linux directory.

   i.   What is the name of this file?   **(1mark)**

   ii.   What is the full command you will invoke from the terminal to aid you change the file?   **(1mark)**

   iii.   You have saved the changes you made to this file but upon checking whether the hostname has changed you realized it still states localhost.locadomain. What could be the problem? Show the full command you would invoke to finally change the hostname   **(2marks)**

e) What is a Linux kernel? **(2marks)**

f) What do you understand by the term Open Source Software (OSS)? **(2marks)**

g) State what you understand by terminal and shell in Linux **(2marks)**