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UNIVERSITY EXAMINATIONS
2022/2023 ACADEMIC YEAR

SPECIAL/SUPPLEMENTARY EXAMINATION
YEAR ONE SEMESTER ONE EXAMINATIONS

FOR THE DEGREE OF BACHELORS OF SCIENCE
(INFORMATION TECHNOLOGY)

COURSE CODE : BIT 322

COURSE TITLE : SYSTEM ADMINISTRATION AND MANAGEMENT

DATE: 11/08/2023   TIME: 2.00 P.M.- 4.00P.M.   2HRS

INSTRUCTIONS TO CANDIDATES

ANSWER QUESTIONS ONE AND ANY OTHER TWO.

QUESTION ONE (COMPULSORY) [30 MARKS]

a. Explain what you understand by the term "System Administrator" and discuss any **FOUR** roles of a systems administrator. **(5 marks)**

b. You have been hired as an external consultant by a client who wants to know why you insist on them installing a network operating system. Discuss any **THREE** services provided by a network operating system as part of your answer to the client. **(6 marks)**

c. As a system administrator, you may need to install desktop or network operating systems from time to time. Before you consider installing an operating system, there are some key considerations that must be reviewed. Discuss any **THREE** such considerations. **(6 marks)**

d. You have been hired as a systems administrator for XYZ Company headquarters in Nairobi. As part of your work you will be required to remotely administer computer located in Mombasa and Kisumu branches. Identify and explain **TWO** tools that will help you to administer the machines in Mombasa and Kisumu. **(6marks)**

e) The CIO in your organization requires you to install and configure a DHCP server. State the importance of a DHCP server and explain the process of assigning IP addresses. **(7 marks)**

QUESTION TWO [20 MARKS]

a) Dual boot or multi-boot installations lead to the existence of two or operating systems on the same system. In performing such installations, in first.

   i) Give a detailed explanation of how you will accomplish the installation of windows server 2003, windows XP and windows server 2008 on the same computer system. **(5 marks)**

   ii) Suppose that you are required to install Linux and Solaris on the same computer system, explain how you will accomplish this. **(5 marks)**

b) To ensure that system administrators do their work well, several principles have been put together over the years.
   i) State the importance of system administration principles.

ii)   Identify and explain any **FOUR** principles that govern the work of system administrators.   **(8 marks)**

QUESTION THREE [20 MARKS]

a)   Users are both the reason that computers exist and at the same time their greatest threat. System administrators must therefore cater for all needs of users and they must ensure the stability and security of computer systems.

As the newly appointed systems administrator at University in Africa, explain any **TWO** user management activities you will have

to deal with from time to time.   **(4marks)**

b)   In order to protect local systems and network servers alike from unauthorized access, an operating system has to require that a user must have a pre-existing set of credentials before being permitted to access local and network resources. These credentials comprise what is commonly referred to as a user account.

i)   Explain what a user account is and its importance as a tool for managing users.   **(2 marks)**

ii)   Distinguish between local user accounts and domain user accounts.   **(6 marks)**

c)   Explain the purpose of the following UNIX configuration files.
        i)   /etc/passwd

        ii)   /etc/shadow   **(4 marks)**

d)   What is the purpose of the following UNIX command line administration tools?

        i)   useradd   **(4 marks)**

        ii)   pwck   **(4 marks)**

QUESTION FOUR [20 MARKS]

a)   Using examples, explain what RAID is and state its importance.

                                                                          (6 marks)

b) Distinguish between RAID 1 and RAID 5 systems. **(8 marks)**

c) Explain the purpose of disk quotas and differentiate strict quotas and loose quotas. **(6 marks)**

QUESTION FIVE [20 MARKS]

a) Explain the importance of standards standards organizations. **(6 marks)**

b) With the help of a diagram that demonstrates how data travels from one computer system to another, explain the various layers of the OSI reference model. **(14 marks)**