



**MASINDE MULIRO UNIVERSITY OF SCIENCE AND
TECHNOLOGY
(MMUST)**

**UNIVERSITY EXAMINATIONS
2021 / 2022 ACADEMIC YEAR**

SUPPLEMENTARY / SPECIAL EXAMINATION

**END OF SEMESTER EXAMINATIONS
YEAR THREE SEMESTER TWO EXAMINATIONS**

**FOR THE DEGREE OF
BACHELOR OF SCIENCE
(INFORMATION TECHNOLOGY)**

COURSE CODE : BIT 321

**COURSE TITLE : SYSTEM ADMINISTRATION AND
MANAGEMENT**

DATE: FRIDAY 29-07-2022

TIME: 11:00A.M-1:00P.M

INSTRUCTIONS TO CANDIDATES

ANSWER QUESTION ONE AND ANY OTHER TWO.

TIME: 2 HOURS

QUESTION ONE [30 MARKS]

- (a) Define essential differences between the following system processes. [6 marks]
- (i) Spooling
 - (ii) Buffering
- (b) Explain the difference between half-duplex and full-duplex [6 marks]
- (c) State and briefly explain any three major factors that may be used to enhance the performance of a System. [6 marks]
- (d) Define the following terms [10 marks]
- (i) DNS
 - (ii) TCP/IP
 - (iii) NFS
 - (iv) Firewall
- (e) State the function of a *Service Pack* in Windows OS? [2 marks]

QUESTION TWO [20 MARKS]

- (a) TCP/IP Model is a specification for computer network protocols where set of rules are defined to enable computers to communicate over a network:
- (i) State the four OSI layers of the TCP/IP Model concerned with the communication [8 marks]
 - (ii) Briefly explain clear functions of each layer supported by the TCP/IP Model. [12 marks]

QUESTION THREE [20 MARKS]

- (a) Briefly explain the functions of the following computer Network components as used in the system administration while bringing out the common differences between them. [10 marks]
- (i) Virtual Server
 - (ii) Domain Name Server
 - (iii) DHCP Server
 - (iv) Telnet Server
 - (v) Application Server
- (b) Identify and briefly explain the method you would use to authenticate the accession of needed information for the following operations. [6 marks]
- (i) Automated Teller Machine (ATM) for cash dispensation.
 - (ii) File /Database Server for *ODeL* course materials.
 - (iii) IEBC BVRS to cast your vote for candidate of choice.

(c) Name the two Layers of OSI model commonly known to host Firewall [4 marks]

QUESTION FOUR [20 MARKS]

(a) The performance of a system administrator is to holistically undertake the management of ICT installation of an organization for maximum utilization of its services to the satisfaction of the requirements. Briefly describe the activities required for the following network areas. [10 marks]

- (i) Security Management
- (ii) Performance Management
- (iii) Planning for Growth
- (iv) Fault Management and Recovery
- (v) Account/User Management

(b) State and briefly explain any five Remote Server Administration Tools for Windows OS [10 marks]

QUESTION FIVE [20 MARKS]

(a) Differentiate between server caching and client caching [6 marks]

(b) Discuss the following.

(i) *Wide-mouth frog algorithm* [4 marks]

(ii) *Diffie-Hellman* [4 marks]

(c) Discuss three levels of system firewall architecture [6 marks]