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KIRIRI WOMEN'S UNIVERSITY OF SCIENCE AND TECHNOLOGY
UNIVERSITY EXAMINATION, 2023/2024 ACADEMIC YEAR
END SEMESTER EXAMINATIONS
FOR THE BACHELOR OF SCIENCE IN COMPUTER SCIENCE
KCS 403 – ADVANCED COMPUTER NETWORKS

Date: 18TH APRIL 2023
Time: 11:30AM – 1:30PM

INSTRUCTIONS TO CANDIDATES

ANSWER QUESTION ONE (COMPULSORY) AND ANY OTHER TWO QUESTIONS

QUESTION ONE (30 MARKS)

- a) Describe the four physical layer functions of the OSI model (4 Marks)
- b) Describe three advantages of Ethernet, which is widely used in local area networks (LANs). (6 Marks)
- c) Distinguish between POP3 and Simple Mail Transfer Protocol as they are used in networking. (4 Marks)
- d) Describe any **four** differences between MAC address and IP address (4 Marks)
- e) Describe the following LAN technologies as used in networking
 - i) Fast Ethernet (4 Marks)
 - ii) Token ring (4 Marks)
- f) Discuss any **two** reasons for sub-netting a networking in organization (4 Marks)

QUESTION TWO (20 MARKS)

- a) Explain the differences between the OSI reference model and the TCP/IP protocol suite using diagrams (14 Marks)
- b) Distinguish between the User Datagram Protocol (UDP) and Transmission Control Protocol (TCP). (6 Marks)

QUESTION THREE (20 MARKS)

- a) A network management model divides a network into five functional management layers, with each layer's functions explained (10 Marks)
- b) Demonstrate how to create five subnets using the IP address 195.17.168.0. (6 Marks)
- c) Describe the use of slash notation in subnet masking in Networking (4 Marks)

QUESTION FOUR (20 MARKS)

- a) Describe the following components of Simple Network Management Protocol(SNMP)
- i) SNMP Manager (4 Marks)
 - ii) SNMP Agent (4 Marks)
 - iii) Management Information Base (4 Marks)
- b) Fiber Distributed Data Interface (FDDI) is a set of ANSI and ISO standards for transmission of data in local area network (LAN), discuss any four features of this technology (8 Marks)

QUESTION FIVE (20 MARKS)

- a) Explain any **four** benefits of Asynchronous Transfer Mode(ATM) networks (8 Marks)
- b) Explain the following cryptography techniques used to secure data being transmitted in a computer network.
- i) Secret key (4 Marks)
 - ii) Public key (4 Marks)
 - iii) Message digest (4 Marks)