



MERU UNIVERSITY OF SCIENCE AND TECHNOLOGY

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UNIVERSITY EXAMINATIONS 2023/2024

SECOND YEAR, FIRST SEMESTER EXAMINATION FOR DIPLOMA IN INFORMATION TECHNOLOGY AND CERTIFICATE IN INFORMATION TECHNOLOGY AND CERTIFICATE IN INFORMATION TECHNOLOGY

CIT 2310 / CIT 1300: NETWORK DESIGN

DATE: DECEMBER 2024

TIME: 1½ HOURS

INSTRUCTIONS: Answer Question ONE and any other TWO questions.

QUESTION ONE (30 MARKS)

- a) Define the following terms as used in networks (8 Marks)
- Topology
 - Adapter card
 - NOS
 - Modem
- b) Networks are differentiated with respect to their capability and coverage. State and explain any network types (6 Marks)
- c) Describe the difference between the UTP cable and STP cable (4 Marks)
- d) Define a protocol (1 Mark)
- e) List and explain protocols used in computer networks (6 Marks)
- f) Define a network operating system and explain its major functions (5 Marks)



MUST is ISO 9001:2015 and



ISO/IEC 27001:2013 CERTIFIED

QUESTION TWO (15 MARKS)

- a) Explain the major subcategories of topologies (2 Marks)
- b) With an aid of a well labelled diagram explain the hierarchical star topology (4 Marks)
- c) Sedik is a private investor; he wishes to have a physical layout of his new SME (Small Business Enterprise). Explain factors to consider before giving him your recommended layout (6 Marks)
- d) Explain major causes of data corruption during data transfer (3 Marks)

QUESTION THREE (15 MARKS)

- a) Describe the OSI model and state its governing body (2 Marks)
- b) Define a server and explain any four types of servers (5 Marks)
- c) Give a brief description of the following OSI model layers (8 Marks)
 - i. Network layer
 - ii. Presentation layer
 - iii. Transport layer
 - iv. Data link layer

QUESTION FOUR (15 MARKS)

- a) Explain the functions of the following network devices (8 Marks)
 - i. Router
 - ii. Bridge
 - iii. Switch
 - iv. Repeater
- b) Amos wants to set a cyber cafe at the town centre that consists of 25 computers; he approaches you on the best way to interconnect the nodes together. Answer the following question:
 - i. In interconnection of the devices to a LAN he may use a passive or active hub, differentiate between the two (3 Marks)
 - ii. List and describe the use of the devices that Amos is required to procure for this job. (4 Marks)

