



# MACHAKOS UNIVERSITY

University Examinations for 2021/2022 Academic Year

DIRECTORATE OF TVET

THIRD YEAR FIRST TERM EXAMINATION FOR  
DIPLOMA IN INFORMATION AND COMMUNICATION TECHNOLOGY  
DATA COMMUNICATIONS AND NETWORKING

DATE: 22/7/2022

TIME: 8.30-11.30 AM

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## INSTRUCTIONS

1. You should have the following for this examination:-
  - Answer booklet
2. Answer four of the six questions in this question paper.
3. All the questions carry twenty marks

This paper consists of three printed pages

Candidates should check the question paper to ensure that all the pages are printed as indicated and that no questions are missing

## QUESTION ONE

- a) Explain two circumstances under which a network administrator could disable SSID (Service Set Identifier) of a wireless access point. (4 marks)
- b) Discuss four advantages of computers networks in the society. (8 marks)
- c) Explain three causes of network failure in any network setup. (6 causes)
- d) Define the term network design. (2 marks)

## QUESTION TWO

- a) Explain three types of clouds as used in cloud computing. (6 marks)
- b) Outline the use of each of the following network commands as used in Computer Networks.
  - i. Ping (2 marks)
  - ii. Ipconfig (2 marks)
  - iii. Traceroute (2 marks)
- c) Discuss four methods that can be used as network trouble shooting techniques. (8 marks)

### QUESTION THREE

- a) With the aid of a diagram, describe a WAN as used in computer networks. (4 marks)
- b) During an ICT class, Wilson described the term browser. State any four types of browsers that he might have mentioned. (4 marks)
- c) Outline the functions of *four* hardware components/equipment required for setting up Local Area Network (LAN) (4 marks)
- d) Explain four functions of protocol as used in data communications. (8 marks)

### QUESTION FOUR

- a) The TCP/IP protocols consist of *five* layers:
  - i. Sketch the arrangement of the layers in their correct order. (5 marks)
  - ii. State the function of each of the layer in (i) above. (5 marks)
- b) Joshua, a network administrator with Mactech Company Ltd would like to implement data security in a network. Explain *three* data security techniques that he could implement. (6 marks)
- c) Define the following terms as used in computing.
  - i. Cloud computing (2 marks)
  - ii. BYOD (2 marks)

### QUESTION FIVE

- a) Discuss three network vulnerabilities that can be experienced in Network security. (6 marks)
- b) The government of Kenya is on a mission to connect all her government offices via fiber optic cable. Explain three advantages of using the type of cable compared to other types. (6 marks)
- c) Distinguish between Wi-Fi and Bluetooth as used in computer networks. (4 marks)
- d) Differentiate between *Backward Error Correction* and *Forward Error Correction* as used in data communication. (4 marks)

### QUESTION SIX

- a) Outline *two* challenges facing network professionals as a result of emerging trends in cyber space. (2 marks)
- b) State four parts of an email address. (4 marks)
- c) Malembezi has embarked on a plan to acquire a new network/server operating system for his newly configured network, Discuss *four* factors that he should consider when choosing a the System. (8 marks)
- d) Distinguish between *cookies* and *bookmark* as used in the internet. (4 marks)
- e) Define the term multiplexing as used in data communications. (2 marks)