



MURANG'A UNIVERSITY OF TECHNOLOGY
SCHOOL OF COMPUTING AND INFORMATION TECHNOLOGY

DEPARTMENT OF INFORMATION TECHNOLOGY

UNIVERSITY ORDINARY EXAMINATION

2017/2018 ACADEMIC YEAR

**FOURTH YEAR FIRST SEMESTER EXAMINATION FOR THE DEGREE OF
BACHELOR OF PURCHASING AND SUPPLIES MANAGEMENT**

BIT 2116 – NETWORK SYSTEMS DESIGN AND IMPLEMENTATION

DURATION: 2 HOURS

DATE: 11TH DECEMBER, 2017

TIME: 9.00 – 11.00 A.M.

Instructions to Candidates:

1. Answer **Question 1** and **Any Other Two** questions.
2. Mobile phones are not allowed in the examination room.
3. You are not allowed to write on this examination question paper.

SECTION ONE - COMPULSORY

QUESTION ONE

- (a) Define the following terms:
- i. Internet Service Provider
 - ii. Ethernet
 - iii. Computer Network (3 marks)
- (b) Networks are defined using different criteria. Describe the computer networks under the following categories:
- i. By geography (3 Marks)
 - ii. By topology (3 Marks)
 - iii. By resource location (3 Marks)
- (c) The vast majority of traffic on the internet is based on the TCP/IP protocol suite. With aid of a diagram, describe the FOUR layers of TCP/IP stack (8 Marks)
- (d) Transmission media is also referred to as communication channel. With aid of diagrams, describe the following wired media:
- i. UTP cable (3 Marks)
 - ii. Coaxial cable (3 Marks)
- (e) Outline four factors that cause interference to a LAN (4 marks)

SECTION TWO – ANSWER ANY TWO QUESTIONS

QUESTION TWO

- (a) With aid of diagrams, describe the three types of wireless propagation (12 Marks)
- (b) Explain each of the following network infrastructure devices: (8 Marks)
- i. Switch
 - ii. Routers
 - iii. Bridges
 - iv. Repeater

QUESTION THREE

- (a) Fibre Optic Cables have characteristics that distinguish them from other cables. Explain the FIVE characteristics that make fibre optic cable unique (10 Marks)

- (b) Describe the **THREE** major LAN technologies used today (6 Marks)
- (c) Explain the following network trouble shooting tools
- i) Ping
 - ii) Tracert (4 Marks)

QUESTION FOUR

- (a) OSI Model was established by International Standard Organization. The model consists of seven layers. With aid of a diagram, explain each of its layer. (14 Marks)
- (b) Explain the following two access methods:
- i. CSMA/CD (3 Marks)
 - ii. CSMA/CA (3 Marks)