



TECHNICAL UNIVERISTY OF MOMBASA

# Faculty of Engineering & Technology

UNIVERSITY EXAMINATION FOR:  
BACHELOR OF SCIENCE IN INFORMATION TECHNOLOGY  
(BSIT 13S)

**BIT 2108: COMPUTER NETWORKS**

END OF SEMESTER EXAMINATION

**SERIES: APRIL 2014**

**TIME: 2 HOURS**

**Instructions to Candidates:**

You should have the following for this examination

- *Answer Booklet*

This paper consists of **FIVE** questions.

Attempt question **ONE (COMPULSORY)** and any other **TWO** questions

Maximum marks for each part of a question are as shown

This paper consists of **TWO** printed pages

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**Question One (Compulsory)**

- a) (i) Define modulation  
(ii) Describe the importance of modulation and demodulation in computer networks. **(5 marks)**
- b) (i) Distinguish between parallel and serial transmission mode  
(ii) Justify why serial transmission mode is the preferred mode for long distance transmissions in computer networks. **(8 marks)**
- c) Describe with the aid of sketch how wireless signals are radiated from transmitter to receiver for freq range 10KHz to GHzs **(8 marks)**
- d) Distinguish between network operating system and application software. **(4 marks)**
- e) Explain FIVE functions of protocols in computer networks. **(5 marks)**
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## Question Two

A telecommunication company wishes to have an end-to-end communication solution that will serve both time sensitive data such as speech as well as not very time sensitive data such as numbers and text. Required:

- a) Analyze and suggest the best data switching technique. **(6 marks)**
- b) Describe how each of the techniques in Q2 (a) function **(10 marks)**
- c) Explain the strength and weakness of each technique in Q2(a) **(4 marks)**

## Question Three

- a) Describe any FOUR major proprietary networking environment that led to the establishment of network standards such as TCP/IP protocol suite. **(8 marks)**
- b) Compare and contrast the function of TCP/IP protocol suite against OSI reference model **(12 marks)**

## Question Four

A telecommunication company wishes to employ you to assist in solving their telecommunication needs that border in the selection of the best transmission media. They inform you that they have been told that fibre optic is very expensive as it requires skilled manpower to install and maintain in addition its harmful to human health. Required

- a) Justify why you would still advice them to deploy fibre optics **(10 marks)**
- b) Describe how total internal reflection is achieved. **(4 marks)**
- c) Describe the type of optical fibre that you would propose for different distance usage. **(6 marks)**

## Question Five

Describe the function of the following networking devices:

- (i) Server
- (ii) Router
- (iii) Bridge
- (iv) Mux
- (v) Modem

**(20 marks)**