



**THE MOMBASA POLYTECHNIC UNIVERSITY COLLEGE**

**(A Constituent College of JKUAT)**

(A Centre of Excellence)

# **Faculty of Engineering & Technology**

**DEPARTMENT OF COMPUTER SCIENCE & INFORMATION  
TECHNOLOGY**

**UNIVERSITY EXAMINATION FOR:  
BACHELOR OF TECHNOLOGY IN INFORMATION TECHNOLOGY  
(BTIT J12/J-FT)**

**EIT 4107: NETWORKING ESSENTIALS**

**END OF SEMESTER EXAMINATION  
SERIES: DECEMBER 2012  
TIME: 2 HOURS**

**Instructions to Candidates:**

You should have the following for this examination

- *Answer Booklet*

This paper consist of **FIVE** questions

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

Maximum marks for each part of a question are as shown

This paper consists of **THREE** printed pages

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**Question One (Compulsory)**

a) Define the following terms as applied in computer networks:

- (i) Bits
- (ii) Baud rate
- (iii) Data rate

**(3 marks)**

b) Describe with the aid of a sketch, any **TWO** types of electrical transmission media. **(6 marks)**

c) Distinguish between fully connect and mesh topology with the aid of sketch. **(4 marks)**

d) Outline **FOUR** factors that led to the establishment of computer network standards. **(4 marks)**

- e) Distinguish between client server and peer to peer computer networks with the aid of a sketch. (4 marks)
- f) Explain why it can be confusing to classify computer networks according to geographical span. (2 marks)
- g) (i) Define a network bridge  
(ii) Describe any **THREE** advantages of installing a network bridge. (7 marks)

**Question Two**

- a) Compare and contrast OSI reference model to TCP/IP (12 marks)
- b) Describe with the aid of a sketch any **FOUR** free space transmission media techniques. (8 marks)

**Question Three**

- a) An organization is planning to put in place a network so that they can be able to serve their customers, suppliers etc very well so as to have a competitive advantage.

Required:

- (i) Describe in details any **FOUR** topologies that you would propose to them with reasons.
- (ii) Describe the most appropriate medium access methods most applicable for each of the topologies described in Q3a(i) above. (20 marks)

**Question Four**

- a) Describe any **FOUR** classifications of computer networks. (8 marks)
- b) Define IP address. Describe the following IP address terms with examples:
  - (i) Subnet mask
  - (ii) IP binary notation
  - (iii) Host ID
  - (iv) Net ID
  - (v) IP space (range) (12 marks)

**Question Five**

- a) Describe the function of the following network devices:
  - (i) Hub
  - (ii) Switch
  - (iii) Router
  - (iv) Server
  - (v) Firewall (10 marks)
- b) Describe any **FIVE** optical fibre connector losses with the aid of a sketch. (10 marks)