



# THE MOMBASA POLYTECHNIC UNIVERSITY COLLEGE

(A Constituent College of JKUAT)

*Faculty of Engineering & Technology*

DEPARTMENT OF COMPUTER SCIENCE & INFORMATION TECHNOLOGY

DIPLOMA IN INFORMATION TECHNOLOGY (DIT/JAN 2010)

**EIT 2302: DATA COMMUNICATION II**

SPECIAL/SUPPLEMENTARY EXAMINATION

**SERIES: MAY/JUNE 2012**

**TIME: 2 HOURS**

**Instructions to Candidates:**

You should have the following for this examination

- *Answer Booklet*

This paper consist of **FIVE** questions

Answer any **THREE** questions. Question **ONE** is compulsory

Maximum marks for each part of a question are as shown

This paper consists of **THREE** printed pages

## SECTION A (Compulsory – 30 marks)

### Question ONE

- a) During an exercise to configure the computers to the internet use, the following terms were mentioned frequently by the configuration team. Explain each of the terms:
- i) Proxy server
  - ii) Subnet address
  - iii) IP address
  - iv) Client computer
- (4 marks)
- b) Identify **FOUR** physical threats to computer networks that organizations need to safeguard
- (4 marks)
- c) Outline **TWO** security levels that can be applied in a network
- (4 marks)
- d) Outline the procedure for manually assigning a computer an IP address. Assume window based operating system environment
- (4 marks)
- e) The following are typical IP addresses for computers in a network
- i) 129.151.4.8
  - ii) 192.110.103.22
  - iii) 122.117.100.21
- Identify the class for each IP address
- (3 marks)
- f) With the aid of a diagram, describe the use of a bridge and a router in a local area network
- (7 marks)

### Question TWO

- a) Explain **FOUR** applications of integrated services digital networks (ISDN)
- (8 marks)
- b) Describe any **SIX** roles of protocols
- (6 marks)
- c) Explain the functions of the following protocols
- i) Hyper Text Transfer Protocols (HTTP)
  - ii) File Transfer Protocol (FTP)
  - iii) Simple Mail Transfer Protocol (SMTP)

### Question THREE

- a) Giving **ONE** example for each, differentiate between
- i) Connection oriented protocols and Connectionless Protocols
  - ii) Routable protocols and Non-Routable protocols
- (8 marks)
- b) Outline the following **TWO** security levels that can be applied in a network.
- i) User level
  - ii) Share level
- (4 marks)
- c) With the aid of a diagram, show the TCP/IP protocol structure
- (4 marks)
- d) Giving advantage and disadvantage of each, differentiate between Dynamic and Static methods of assigning IP addresses
- (4 marks)

### Question FOUR

- a) During network configuration, a student used the commands ipconfig/all and traceroute. Distinguish between the two commands. (4 marks)
- b) With the aid of a diagram, drawn on the same axis, describe the following encoding techniques:  
i) Non-return – to zero (NRZ)  
ii) Manchester (Bi-phase)  
iii) Differential Manchester (9 marks)
- c) Using diagrams explain the operations of the FDDI networking technology (7 marks)

**Question FIVE**

- a) Describe any **FOUR** limitations of Integrated Services Digital Network (8 marks)
- b) Explain the following fault tolerance techniques  
i) Disk duplexing  
ii) Disk mirroring  
iii) Disk stripping  
iv) Hot fixing (8 marks)
- c) Using diagram show how the TCP/IP protocol stack fits into the OSI 7 layers reference model (4 marks)