THE MOMBASA POLYTECHNIC UNIVERSITY COLLEGE

(A Constituent College of JKUAT)

(A Centre of Excellence)

Faculty of Engineering & Technology

DEPARTMENT OF COMPUTER SCIENCE & INFORMATION TECHNOLOGY

DIPLOMA IN INFORMATION COMMUNICATION TECHNOLOGY
(DICT 2K 11M/DICT 10A/DICT 11M)

ECT 2202: DATA COMMUNICATION

SPECIAL/SUPPLEMENTARY EXAMINATION
SERIES: OCTOBER 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** and any other **TWO** questions
Maximum marks for each part of a question are as shown
This paper consists of **THREE** printed pages

SECTION A (COMPULSORY)

Question One (30 marks)

a) Identify the classes of each of the following ID Addresses.
- **i)** 129.151.4.8
- **ii)** 192.110.103.22
- **iii)** 72.177.100.20 **(3 marks)**

b) Explain the functions of the following layers in the OSI model.
- **i)** Transport Layer **(2 marks)**
- **ii)** Data Link Layer **(2 marks)**
- **iii)** Session Layer **(2 marks)**
- **iv)** Physical Layer **(2 marks)**

c) During Network Configuration, a student used the commands IPConfig/all and ping. Distinguish between the two commands. **(4 marks)**

d) State any **FOUR** KEY considerations that need to be factored when selecting a transmission medium. **(4 marks)**

e) Write short notes on the following transmission medium impairment.
- **i)** Attenuation **(2 marks)**
- **ii)** Distortion **(2 marks)**
- **iii)** Noise **(2 marks)**
- **iv)** Jitters **(2 marks)**

f) State any **THREE** advantages of installing computer networks. **(3 marks)**

SECTION B (Answer Any Two Questions)

Question Two (15 marks)

a) Explain using diagrams these **THREE** transmission modes:
- **i)** Full duplex
- **ii)** Half duplex
- **iii)** Simplex; and explain. **(9 marks)**

b) List **THREE** advantages of using unbounded/unguided transmission medium against bounded/guided transmission medium. **(6 marks)**

Question Three (15 marks)

a) State the **FOUR** major tasks of a network administrator. **(4 marks)**

b) Explain the functional difference between the following networking devices.
- **i)** Router and Switch **(6 marks)**
- **ii)** Hubs and Bridges **(5 marks)**

Question Four (15 marks)

a) Using a detailed diagram, compare the similarities and differences between the TCP/IP Internet model and that of the OSI model. **(15 marks)**

Question Five (15 marks)

a) Describe **FIVE** factors to consider when selecting a network topology. **(10 marks)**

b) Outline **FIVE** advantages of a star topology. **(5 marks)**