TECHNICAL UNIVERSITY OF MOMBASA

FACULTY OF ENGINEERING AND TECHNOLOGY

ELECTRICAL AND ELECTRONICS ENGINEERING DEPARTMENT

UNIVERSITY EXAMINATION FOR:

THIRD YEAR EXAMINATION FOR THE DIPLOMA OF SCIENCE IN ELECTRICAL ENGINEERING (DTIE 6)

ETI 2306: DATA NETWORKS

END OF SEMESTER EXAMINATION

SERIES: DECEMBER 2016

TIME: 2HOURS

DATE: 2016/2017

Instructions to Candidates

You should have the following for this examination
-Answer Booklet, examination pass and student ID
This paper consists of 5 questions. Attempt ANY THREE QUESTIONS
Do not write on the question paper.

Question One

a) Describe the concept of packet switching in data networks [4marks]
b) Define the following:
  i. VPN
  ii. DHCP
  iii. NAT   [3 marks]
c) List and explain the layers of OSI Model [4 marks]
d) Describe the advantages of layered OSI model approach [5marks]
e) State four advantages of circuit switching [4 marks]

Question two

a) Differentiate between datagrams and virtual circuits in packet switching [4marks]
b) Define X.25 network[2 marks]
c) Difference ISDN and DSL [3 marks]
d) Define SONET and explain the SONET frame format [6marks]

e) State two WAN protocols [2 marks]

f) Give three examples of circuit switched network [3 marks]

Question Three

a) Define ISDN [2 marks]

b) Discuss the layers of the OSI Model related to X.25 networks [6 marks]

c) Explain the channels that are used in ISDN [3 marks]

d) List and explain the user interfaces used in ISDN networks [6 marks]

e) Explain the functions of session layer in the OSI model [3marks]

Question Four

a) Define the X.25 equipment terminologies

    a) DTE

    b) DCE

    c) DSE   [6 marks]

b) Describe services provided by ISDN in communication system [4marks]

c) Describe how you can multiplex STS frame [4 marks]

d) Differentiate between parallel and serial transmission and state their advantages [6 marks]

Question Five

a) List the SONET device [2 marks]

b) Explain the characteristics of the frame relay network [4 marks]

c) Differentiate between congestion control and congestion avoidance as used in frame relay networks [4 marks]

d) Explain broadband services used in Tele-worker services [3 marks]

e) Explain the DHCP operation in computer networks [3 marks]

f) Differentiate between SONET and SDH [4marks]