



MURANG'A UNIVERSITY COLLEGE
(A constituent College of Jomo Kenyatta University of Agriculture and Technology)
UNIVERSITY EXAMINATIONS 2014/2015
SECOND YEAR FIRST SEMESTER I EXAMINATION FOR THE DEGREE OF
BACHELOR OF SCIENCE IN INFORMATION TECHNOLOGY &
BACHELOR OF BUSINESS IN INFORMATION TECHNOLOGY
BIT 2116/HBT 2204: Network Design and Management

COURSE: B.Sc.IT`

DURATION: 2 HOURS

DAY/TIME: Tuesday 8:30-10:30 AM

DATE: 21/04/2015

Instructions: Answer Question One and Any Other Two

Question One (30 marks)

- a) Define the following terms as used in computer networks
- i. Data rate
 - ii. Bandwidth
 - iii. Attenuation
 - iv. Protocol
 - v. Client
 - vi. Server
- [6 marks]
- b) Discuss any FIVE aspects that one needs to consider before designing a network for a given organization
- [10marks]
- c) Differentiate between the following;
- i) CSMA/CD and Token passing access methods
 - ii) Physical topology and logical topology
 - iii) Half duplex and full duplex
- [6marks]
- d) Briefly explain the following under data transmission in wide area networks:
- i) Packet switching

- ii) Circuit switching
 - iii) Message switching [6marks]
- e) Differentiate between guided and unguided transmission media. State two examples of each. [4marks]

Question Two (20 marks)

- a) Describe where particularly the RG 8, 9,11 and RG 58,59 coaxial cables are best suited for Ethernets with respect to the IEEE 802.3 standard [4marks]
- b) Explain the construction principles that make fibre optic a superior conduit as opposed to others [4marks]
- c) Illustrating with a diagram, explain the frame format of an Ethernet lan [6marks]
- d) Describe schematically the orientation of OSI layers stating the functions of each [6marks]

Question Three (20 marks)

- a) Routers use the least cost routing concept, describe the concepts {6marks}
- b) Describe the operating principles differentiating the Adoptive routing and the Non adoptive routing [6marks]
- c) A repeater is not simply a signal amplifier. Qualify this statement [4marks]
- d) Describe the any two modulation and encoding techniques [4marks]

Question Four (20 marks)

- a) Describe the implementation of the following signal propagations, illustrate using diagrams
 - i. Troposphere
 - ii. Ionosphere [10marks]
- b) Discuss the Bluetooth network technology [10 marks]