



KENYATTA UNIVERSITY
UNIVERSITY EXAMINATIONS 2017/2018
FIRST SEMESTER EXAMINATION FOR THE DEGREE OF MASTER OF
BUSINESS ADMINISTRATION

BMS 846: DATA COMMUNICATION AND NETWORKING

DATE: Monday, 20th November 2017

TIME: 5.30p.m-8.30p.m

INSTRUCTIONS:

Answer question ONE and any other THREE questions

QUESTION ONE (40 marks)

Data communication has been necessitated by the increase of devices needing to communicate with each other. However data communication is not an entirely new phenomenon. Its history extends well beyond modern computer connections and wireless devices. According to the History of Computing organization, data communication has its earliest roots in Samuel Morse's 1837 exhibition of a telegraph system. The standard telephone lines were not used to carry data traffic over the network until nearly a hundred years later. Subsequently the development of early telecommunications coupled with invention of the radio in 1895 laid the bedrock for various ensuing developments in communication technology. Advancements in data communication have completely transformed the people work and play.

a) Data communication has transformed the manner in which people work and play. Support this statement by examining at least five industries and discussing ways they have been transformed by this phenomenon. **(10 marks)**

b) Discuss the technological advancements that took place in each of the five Generations of Computer: of particular significance point out how they lead to data communication and network. **(10 marks)**

c) IPV6 naming convention is slowly overtaking IPV4. Reveal the circumstances in surrounding the need of IPV6 addressing convention. Further distinguish between both naming conventions. **(10 marks)**

- d) Showing all working, clearly translate the following. (6 marks)
Decimal number 10111111_{10} to Binary
Binary number 111111_2 to Decimal.
- e) Contrast analog versus digital signals. (4 marks)

QUESTION TWO (20 marks)

- a) Every device on a network must be configured with an IP address. Justify this statement and further distinguish between the three types of IP addresses. (10 marks)
- b) Distinguish between physical and logical network topologies additionally provide examples of at least five physical topologies giving criteria for selecting each to establish a network. (10 marks)

QUESTION THREE (20 marks)

- a) Distinguish between at least five characteristics of analog versus digital computers. (10 marks)
- b) Networking protocols ensure that devices are able to share a network. Reveal the role of the Application Layer and further describe at least four protocols that operate within this layer. (10 marks)

QUESTION FOUR (20 marks)

- a) Networking protocols ensure that devices are able to share a network. Reveal the role of the Transport Layer and further describe at least four protocols that operate within this layer. (10 marks)
- b) Networks are subject to security threats. Mitigating these threats therefore becomes important to ensure network security. Discuss the steps that a recommended while mitigating a worm attack. (10 marks)

QUESTION FIVE (20 marks)

- a) E-commerce is one application of data communication. Identify different types of e-commerce and further discuss both advantages and challenges organizations experience when using e-commerce to conduct business. (10 marks)

b) Network security of of major importance to the organization. Distinguish between network vulnerability, threat and attack. Further discuss at least five policy weaknesses and five configuration weaknesses that may compromise network security. (10 marks)
