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**KIRIRI WOMENS' UNIVERSITY OF SCIENCE AND TECHNOLOGY
UNIVERSITY EXAMINATIONS, 2020/2021 ACADEMIC YEAR
FOR THE DEGREE OF BACHELOR OF SCIENCE
(COMPUTER SCIENCE)**

KCS 403 - ADVANCED COMPUTER NETWORKS

Date: 17th December, 2020
Time: 8.30am – 10.30am

INSTRUCTIONS TO CANDIDATES

ANSWER QUESTION ONE (COMPULSORY) AND ANY OTHER TWO QUESTIONS

QUESTION ONE (30 MARKS)

- a) Describe clearly different characteristics of inter-connectivity class of computer networks. (5 Marks)
- b) Describe the characteristics of IEEE 802.11n category of family standards of networks. (5 Marks)
- c) Explain why network management is so important when it comes to network infrastructure. (5 Marks)
- d) What is network routing? Explain how it works. (5 Marks)
- e) By a use of a diagram, discuss the seven layered structure of OSI model. (10 Marks)

QUESTION TWO (20 MARKS)

- a) Discuss different key areas that comprise network management as suggested by the International Organization for Standardization (ISO). (10 Marks)
- b) By use of well diagrams, explain the difference between the following types of computer architecture.
 - i) Peer to peer network
 - ii) Client-server network (10 Marks)

QUESTION THREE (20 MARKS)

- a) Differentiate between broadcast routing and multicast routing network methodologies. (4 Marks)
- b) Explain different ways in which an individual user can get connected to the internet. (6 Marks)
- c) Explain briefly the roles of the following network protocols (10 Marks)
 - i) Address Resolution Protocol
 - ii) Internet Control Message Protocol
 - iii) Transmission Control Protocol
 - iv) File Transfer Protocol
 - v) Internet Protocol

QUESTION FOUR (20 MARKS):

- a) Describe different security measures and protection factors that any network administrator will consider in order to secure and protect computer networks. (10 Marks)
- b) Explain different limitations of wireless application protocol (WAP) in computer networks. (10 Marks)

QUESTION FIVE (20 MARKS):

- a) Computer networks are classified based on various factors. Discuss. (10 Marks)
- b) Discuss reasons why the network designers and administrators require a layering architecture during networking? (10 Marks)