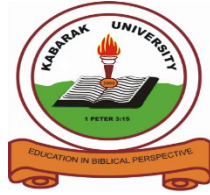**KABARAK   UNIVERSITY**

UNIVERSITY EXAMINATIONS

2015 / 2016 ACADEMIC YEAR

FOR THE DEGREE OF BACHELOR OF SCIENCE IN COMPUTER SCIENCE

COMP 312: COMPUTER NETWORKS

DAY: MONDAY   DATE: 18/04/2016

TIME: 11:30 – 1:30PM   STREAM: Y3S1

Instructions:

Answer question one and any other two

QUESTION ONE   **[30 MARKS]**

a) Briefly explain six characteristics of a centralized system.   (6 Marks)

b) With the aid of a diagram, explain the following encoding schemes, Unipolar NRZ, Polar NRI, NRZ-Inverted (Differential encoding), Bipolar Encoding, and Manchester encoding for Signal **10011100**.   (8 Marks)

c) You are an ICT Manager at Quakes Communications Ltd. The company intends to change its Transmission network. The CIO has requested you to write a report to

be presented to Board of Directors detailing design factors for the same. Explain four factors that your report will entail. (4 Marks)

d) Make a distinct comparison between the original and the current TCP/IP Layers.

(5 Marks)

e) With three examples of each, explain the differences between Networking and Internetworking devices. (5 Marks)

f) In backbone networks, explain the term 'Daisy Chain'. (2 Marks)

QUESTION TWO **[20 MARKS]**

a) Given a binary signal 0101100100100, explain Amplitude, Phase and Frequency Modulation of the resulting signals. (6 Marks)

b) Describe three optic fiber transmission modes. (6 Marks)

c) Murray works for Planet Networks Inc. that requires to undertake an upgrade of their existing network structure, explain what Murray as the Project Manager needs to do;

i) To make a project a success. (3 Marks)

ii) Identify what could have caused Planet Networks Inc. to decide to undertake such an expensive venture. (5 Marks)

QUESTION THREE **[20 MARKS]**

a) As a new Network Administrator, your company needs to lay out their very first LAN. The Management has decided to go for UTP cabling. Explain any four UTP Categories available that can be used to implement this. (8 Marks)

b) Briefly discuss the functions of each layer in the OSI model. (7 Marks)

c) Explain the following acronyms and terms, BER, SNR, Bandwidth, Router and attenuation. (5 Marks)

QUESTION FOUR   **[20 MARKS]**

a) Discuss five characteristics of distributed systems.   (5 Marks)

b) Briefly explain three switching approaches.   (6 Marks)

c) You have just been recruited as network Administrator at Kenya Data Networks (KDN) and your first task is to undertake a project of installing a new network in a new company. Explain how you will constitute your project team.   (4 Marks)

d) Differentiate between a Brouter and a router.   (5 Marks)

QUESTION FIVE   **[20 MARKS]**

a) Briefly explain two protocols underlying in each of the five layer TCT/IP suite.
                                                                                                       (6 Marks)

b) Briefly explain three circuit switching properties.   (6 Marks)

c) Enumerate four factors affecting signal interpretation and performance.

                                                                                                       (4 Marks)

d) Explain the terms **Modulation** and **Encoding**.   (4 Marks)