

**THE TECHNICAL UNIVERSITY OF KENYA**

**FACULTY OF APPLIED SCIENCES AND TECHNOLOGY**

**SCHOOL OF COMPUTING & INFORMATION TECHNOLOGIES**

END OF SEMESTER EXAMINATION SERIES

FIRST SEMESTER EXAMINATIONS 2018/2019

THIRD YEAR EXAMINATIONS FOR

BACHELOR OF TECHNOLOGY IN COMMUNICATION AND COMPUTER NETWORKS

**ECII 3205 DATA COMMUNICATION II**

**TIME: 2 Hours**

**Instructions to candidates:**

This paper consists of FIVE Questions.

Answer Question ONE [30 Marks] and any other TWO Questions [20 Marks Each].

Write your university number on the answer sheet.

This paper consists of 3 printed pages

**Candidates should check the question paper to ascertain that all the pages are printed as indicated and that no questions are missing.**

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**QUESTION ONE [30MARKS] COMPULSORY**

1. Under what circumstance, will an IT expert use the repeater and not an amplifier? [2Marks]
2. Explain briefly why SONET is called a synchronous network hence distinguish its relationship wth SDH. [3Marks]
3. State the role of the router in a given network environment hence differeintiate with a bridge as one of networking device. [3Marks]
4. Outline the various factors that determine the relialibity of delivery in transport layer.

[4Marks]

1. Differentiate betweeen end-to end delivery in the transport layer and end to end delivery in the network layer. [3Marks]
2. Describe the concept of virtual terminal and how is it used in remote access. [5Marks]
3. Explain the role played by the component of message handling function systems. [4Marks]
4. State the advatages of of using UDP over TCP hence relate boundary level masking and non-boundary level masking. [6Marks]

**QUESTION TWO [20MARKS]**

1. Discuss five function of transport layers [10Marks]
2. Explain the three devised phase of connection –oriented does transport service goes through

[3Marks]

1. Underwhat circumstance do we use upward and downward multiplexing in transport layer.

[4Marks]

1. Explain briefly any three transport classes that are defined by the OSI model[3Marks]

**QUESTION THREE [20 MARKS]**

1. For a set up insitution, the IT engineer should do a feasibility study on how he can roll off a network configuration. Explain the function of following devices: [10Marks]
2. Gateway.
3. Bridge.
4. Multiprotocol router.
5. Transparent Bridge.
6. Switch and a Repeater.
7. Discuss various issues that are associated with bridges connecting different LANs.[6Marks]
8. Before setting up a given network , what are the key things that are consindered by the IT Engineer. [4Marks]

**QUESTION FOUR [20 MARKS]**

1. Explain basic standard of SONET layers and its physical configuration. [10Marks]
2. Compare the SONET layers to the layers of OSI reference model. [4Marks]
3. Using illustartion, explain the basic operation of a SONET frame. [4Marks]
4. Describe the purpose of the pointer in the line overhead. [2Marks]

**QUESTION FIVE [20MARKS]**

1. Discuss the function of session layer and presenation layer of the OSI model. [10Marks]
2. Relate TCP/ IP application layer to the OSI model equivalent. [6Marks]
3. Explain any four attributes that have contribute to the evolution of IP communication.

[4Marks]