

**THE TECHNICAL UNIVERSITY OF KENYA**

**FACULTY OF APPLIED SCIENCES AND TECHNOLOGY**

**SCHOOL COMPUTER SCIENCE & INFORMATION TECHNOLOGY**

END OF SEMESTER OCTOBER 2017 EXAMINATION SERIES

THIRD SEMESTER EXAMINATIONS 2016/2017

THIRD YEAR EXAMINATIONS FOR

BACHELOR OF COMMUNICATIONS AND NETWORK TECHNOLOGY

**ECCI 3207 INTERNET ARCHITECTURE**

**TIME: 2 Hours October 2017**

**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. Outline various factor that determine the reliability of delivery in transport layer (2Marks)
2. Under what circumstance is upward multiplexing being used at transport layer (2Marks)
3. Distinguish between subnetting and masking (2Marks)
4. Highlights the advantages of using UDP over TCP (2Marks)
5. Under what circumstance best effort delivery service is fully optimized (2Marks)
6. Explain the main purpose of time live field in the IP datagram header (2Marks)
7. Explain why NVT is need in remote login (4Marks)
8. Describe briefly the type of application program that allows connection to a remote system in such a way that the local terminal appear to be a terminal at the remote system (4Marks)
9. Highlights the three protocols that interact to manage a networks (4Marks)
10. Discuss the importance of HTML and JAVA (4Marks)
11. Differentiate between a user agent (UA) and mail transfer agent (MTA) (2Marks)

**QUESTION TWO(20Mark)**

1. Describe how end-to- end delivery can be accomplished in either two modes: connectionless and connection –oriented (6Marks)
2. Explain in details how reliable delivery is achieved at transport layer (6Marks)
3. With an aid of diagram, explain TCP segment format (8Marks)

**QUESTION THREE(20Marks)**

1. Discuss four types of protocols supported by TCP/IP in the network layer (8Marks)
2. i. Relate the TCP/IP application layer to its OSI model equivalent (4Marks)
3. ii. Explain how masking is related to subnetting (4Marks)
4. Describe the step required for data communication for connection oriented protocol (4Marks)

**QUESTION FOUR (20Marks)**

1. i. Compare and contrast three types of WWW document (3Marks)
2. ii. Explain how HTTP and WWW related to internet (3Marks)
3. Describe how BOOTP differ from DHCP and TFTP differ from FTP (8Marks)
4. Distinguish the function of SMTP over SNMP hence describe how SNMP manages network device (6Marks)

**QUESTION FIVE (20Marks)**

1. Explain how MIME enhance SMTP (4Marks)
2. Describe why an application such as POP is needed for electronic messaging (4Marks)
3. In the client server model, what is the role of the client programmed and server programmed.

(6Marks)

1. Describe the relationship between CGI and dynamic document hence state the purpose of HTML

(6Marks)