

**TECHNICAL UNIVERSITY OF KENYA**

**FACULTY OF APPLIED SCIENCES AND TECHNOLOGY**

**SCHOOL OF COMPUTING & INFORMATION TECHNOLOGY**

**END OF SEMESTER EXAMINATION SERIES**

**SECOND SEMESTER EXAMINATIONS 2019/2020**

**THIRD YEAR EXAMINATIONS FOR THE DEGREE OF**

**BACHELOR OF TECHNOLOGY IN COMMUNICATION AND COMPUTER NETWORKS**

**ECCI 3200 INTERNET ARCHITECTURE AND PROTOCOL**

**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 college 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.**

**QUESTION ONE -COMPULSORY [30Marks]**

1. Explain briefly the various role of the following networking equipment: [4Marks]
2. Switch
3. Hub
4. Router
5. Bridge
6. How does the application program interface communicates with other lower layers of OSI ?

[2Marks]

1. Explain the following terms: [4Marks]
2. Multi-purpose router
3. Layer switches
4. Highlights the advantages of using TCP [2Marks]
5. Sequencing, reordering and retransmission of damaged packet isn’t done on UDP. How dos e it addresses the issue? [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. Network layer defines four protocol explain the basic function of IGMP and RARP [4Marks]
9. 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 [2Marks]
10. Explain the basic concept of client -server program [2Marks]

**QUESTION TWO [20Mark]**

1. With the reference to IP frame format, explain its functionality [8Marks]
2. Explain four attributes associate with a router [4Marks]
3. Several networking equipment have been defined in reference to open system interface OSI. Explain any four of them on how they are being interlink and what are their core functions.

[8Marks]

**QUESTION THREE [20Marks]**

1. Network layer of OSI define four protocol. Explain the core function in relation to packet transfer and how is the communication to other related layers [8Marks]
2. Transport layer its represented in by TCP/IP suite where the two protocols are being defined. Explain how the two protocol vary and hence explain their frame format [12Marks]

**QUESTION FOUR [20Marks]**

1. i. In the client-server model, what is the role of client program and server program? [3Marks]

ii. Explain how HTTP and WWW related to internet [3Marks]

1. Describe how BOOTP differ from DHCP and HTTP differ from FTP [8Marks]
2. Explain how MIME is enhance through SMTP [6Marks]

**QUESTION FIVE [20Marks]**

1. Using illustration, explain the function of SNMTP in comparison to SMTP [6Marks]
2. Describe why an application such as POP is needed for electronic messaging [4Marks]
3. Explain how hypertext transfer protocol operates through transaction, message response and URL

[6Marks]

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

[4Marks]