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**GARISSA UNIVERSITY**

**UNIVERSITY EXAMINATION 2020/201 ACADEMIC YEAR ONE**

**SECOND SEMESTER EXAMINATION**

**SCHOOL OF SCHOOL OF PURE AND APPLIED SCIENCES**

**DIPLOMA IN INFORMATION TECHNOLOGY**

**COURSE CODE: DIT 004**

**COURSE TITLE: DATA COMMUNICATION AND NETWORKING II**

**EXAMINATION DURATION: 2 HOURS**

**DATE: 16/08/2021 TIME: 09.00-11.00 AM**

**INSTRUCTION TO CANDIDATES**

* **The examination has FIVE (5) questions**
* **Question ONE (1) is COMPULSORY**
* **Choose any other TWO (2) questions from the remaining FOUR (4) questions**
* **Use sketch diagrams to illustrate your answer whenever necessary**
* **Do not carry mobile phones or any other written materials in examination room**
* **Do not write on this paper**

**This paper consists of TWO (2) printed pages *please turn over***

**QUESTION ONE (COMPULSORY)**

1. Describe in detail, the major functions in transmission. 8 marks
2. What is parallel transmission? Under what condition will you choose parallel transmission over serial transmission? 7 marks
3. Describe simplex, half-duplex and full duplex transmission. 6 marks
4. What is baud rate? What is the difference between baud and bit rate? 4 marks
5. Outline the difference between synchronous and asynchronous transmission. 5 marks

**QUESTION 2**

1. What are the different functional components of a computer network? 6 marks
2. Why do we need to modulate a signal? 4 marks
3. What is modulation? Describe different techniques used to modulate an analog signal into a analog system. 8 marks
4. What are the different modulation techniques used to modulate a digital signal into an analog system? 2 marks

**QUESTION 3**

1. What is the role of modem in data communication? 4 marks
2. What is multiplexing? Describe different types of multiplexing scheme. 6 marks
3. When would you use Statmux in place of synchronous time division multiplexing? 4 marks
4. Describe how a communication facility is shared in broadcast type of environment? 6 marks

**QUESTION 4**

1. Where would you use terrestrial microwave as a transmission media? 4 marks
2. What is circuit switching? What are the disadvantages of circuit switching? 6 marks
3. Why packet switching is more efficient than message switching? What are the typical applications of message switching? 4 marks
4. Describe in detail, the difference between the datagram and virtual circuit techniques 6 marks

**QUESTION 5**

1. OSI Reference model enables open systems to communicate" explain. 3 marks
2. What are the functions performed by the presentation layer? 4 marks
3. Why do we need a layered architecture in a networking environment? 3 marks
4. Reliability in data transmission is of prime importance. What are the layers that contribute to a reliable data transfer? 4 marks
5. What is the commonality between OSI model and TCP/IP protocol suite? 6 marks