



NATIONAL OPEN UNIVERSITY OF NIGERIA
University Village, 91 Cadastral Zone, Nnamdi Azikwe Expressway, Jabi, Abuja
FACULTY OF SCIENCES
COMPUTER SCIENCE DEPARTMENT
2020_1 EXAMINATIONS

CIT 852 – DATA COMMUNICATION AND NETWORK

Credit: 3 units

TIME ALLOWED: 2½ Hours

INSTRUCTION: Answer Question 1 and any other FOUR (4) Questions

- 1a) Give a concise explanation of the computer network (*2 marks*)
- b.) Describe the following network topologies: (**10 marks**)
 - (i) Bus topology
 - (ii) Star topology
 - (iii) Ring topology
 - (iv) Tree topology
 - (v) Mesh topology
- c.) Describe the Wireless LAN Architecture (**2 marks**)
- d.) In tabular form, differentiate between connection-oriented and connection-less services. (*8 marks*)

2. a.) Write briefly on the following network characteristics (**3 marks**)
 - (i) Topology
 - (ii) Protocol
 - (iii) Architecture
- b.) State five basic goals that a Computer network should satisfy. (*5 marks*)
- c.) Create a short scenario describing the Leaky Bucket Algorithm analogy in congestion control. (**4 marks**)

3. a.) List the parameters to be considered while selecting a physical topology (*2 mark*)
- b.) Contrast and compare Tree topology and Star topology. (*4 mark*)
- c.) Using an appropriate Table, differentiate between Congestion Control and Flow Control (*3marks*)
- d.) In each of the following network layers, state in tabular form the congestion prevention mechanisms used at the different layers with solutions. (*3 marks*)
 - (i) Transport layer
 - (ii) Network layers
 - (iii) Data link layer

4. a.) Describe the OSI reference model using appropriate diagram only. (*4 marks*)
- b.) Differentiate between TCP and UDP. (*4 marks*)
- c.) List four important features that distinguishes networks from each other and cite relevant examples. (*4 marks*)

5. a.) Write short notes on any two layer of the TCP/IP reference model. *(4 marks)*
 - b.) Give two reasons for using layered protocols. *(2 marks)*

- 6.a.) What is Data Communication? *(2marks)*
 - b.) Explain the term bandwidth. *(4 marks)*
 - c.) Why is bandwidth useful? *(2 marks)*
 - d.) Contrast between the switching at the data link layer and the routing at the network layer. *(4 marks)*