



NATIONAL OPEN UNIVERSITY OF NIGERIA

University Village, 91 Cadastral Zone, NnamdiAzikwe Expressway, Jabi, Abuja
FACULTY OF SCIENCES
COMPUTER SCIENCE DEPARTMENT
2023_1 POP EXAMINATION.

Course Code: CIT852

Course Title: Data Communication and Networks

Course Credit Unit: 3

Time: 3 hours

Instruction: Answer question 1 and any other three (3) questions.

1a) Enumerate six of the basic goals that a Computer network should satisfy **(6 marks)**

b) List the types of broadcast networks **(1½marks)**

c) State four advantages of star topology **(4 marks)**

d) Identify two disadvantages of tree topology **(2 marks)**

e) Enumerate any three most widely known Application Layer protocols used for the exchange of user information and their respective uses **(4½ marks)**

f) State two of the drawbacks of TCP/IP model. **(2 marks)**

g) State two advantages and three disadvantages of Asynchronous communication. **(5 marks)**

2a) Write short notes on Cellular Topology (Use diagram where necessary). **(5 marks)**

b) State one advantage and disadvantage of cellular topology **(2 marks)**

c) What are the design goals of **Secure Sockets Layer (SSL) 3.0?** **(8 marks)**

3a) Briefly describe the core protocols of the Transport Layer of the Open System Interconnect (OSI) reference model **(6 marks)**

b) Discuss Broadcast Networks **(6 marks)**

4a) Briefly discuss instant messaging and enumerate its vulnerabilities. **(8 marks)**

b) In a tabular form, present, in order, the Layers of the OSI reference model and the corresponding data package for each layer. **(7 marks)**

5a) In a tabular form, Compare OSI and TCP/IP models. **(10 marks)**

b) Write short notes on Virtual Private Network (VPN). **(5 marks)**

6a) Some challenges are usually encountered by the data transmission lines. List them. **(3 marks)**

b) Briefly describe any two of the challenges listed in question (6a) above. **(8 marks)**

c) Write short notes on token bucket traffic shaper. **(4 marks)**