NATIONAL OPEN UNIVERSITY OF NIGERIA
14-16 AHMADU BELLO WAY, VICTORIA ISLAND LAGOS
SEPTEMBER/OCTOBER 2015 EXAMINATION

SCHOOL OF SCIENCE AND TECHNOLOGY

Course Code: **CIT852**

Course Title: **Data Communication and Networks**

Time: **3 hrs**

Course Credit Unit**: 3**

Instruction: **Attempt any four (5) questions. Each question carries 14 marks**

Question 1

a. Briefly explain the concept X.509 certificate.
b. List componentsofa X.509CertificateandCRL certificate.
c. Listdifferencesbetween SSLandTLS.
d. What does the acronymS-HTTP stand for?
e. Briefly explain instantmessaginganditsvulnerabilities?

2.

a. List the steps of the Djikstra routing algorithm (5 marks)
b. Using a table only, highlight 2 differences between congestion control and flow control. (4 marks)
c. For each class of IP address, specify the following with the aid of a table containing the following columns: (5 marks)
    i. IP address class
    ii. Higher order bit
    iii. Format

3.

a. With the aid of diagram write a short note on Digital signature
b. Write a brief on Public Key Infrastructure (PKI)
c. Define Light-weight DirectoryAccess Protocol
d. Define theSimpleNetwork ManagementProtocol (SNMP)

4.

a. State the 3 steps required for connection establishment in connection oriented services (3 marks).
b. Briefly explain the following concepts:
    i. Flooding (3.5 marks)
    ii. Link state routing (4.5 marks)
c. State 3 reasons for congestion on a network (3 marks)
d. State 3 important features of UDP (1.5 mark)
e. State 2 applications that use UDP exclusively (2 marks).

6.

a. Outline four (4) designgoalsofSSL3.0.
b. Explain what these four (4) design goals of SSL 3.0 were to provide
c. Contrast between TCP and UDPTheDomainNameSystem(DNS)

5.

a. Explain the following terms:
    i. Hierarchical address (1 mark)
    ii. Flat address (1 mark)
    iii. Static Address assignment (1.5 marks)
    iv. Dynamic address assignment (1.5 marks)
    v. Adaptive routing (1.5 marks)
    vi. Non-adaptive routing (1.5 marks)
b. When routers receive packets faster than they can forward them, state the 2 possibilities that could occur in the case of congestion. (2 marks)
c. State 4 features of a token bucket traffic shaper. (4 marks)

7. a. Outline five out of the setof Public-KeyCryptographyStandards (PKCS)
b. Display the RSA key generation algorithm.
c. Explain the following;
    i. Exclusive OR (XOR)
    i. Modulo Function
    ii. TheFile TransferProtocol(FTP)
    iii. TheSimpleMailTransferProtocol(SMTP)