UNIVERSITY OF LAGOS
DEPARTMENT OF COMPUTER SCIENCES
B.Sc. Hons. (Computer Science) Degree Examination
Second Semester, 2006/2007 Session October 2007

CSC 423: COMPUTER NETWORKS
INSTRUCTION: ANSWER FOUR QUESTIONS
TIME: 2 HOURS

1. ai Differentiate between classful and classless addressing schemes.
   ii Discuss the limitations of classful addressing scheme.
   iii Interpret the following classless IP address: 204.5.5.0/27.

   bi What is subnetting?
   ii How does one subnet a network?
   iii A classless IP address is of the form: 204.15.5.0/27. How many subnets can be derived from this address notation?

2 a. Distinguish between a Local Area Network and a multi site Intranet.
   b.
   i. Outline the components required to build a Local Area Network.
   ii. Briefly describe the functions of the components listed in (bi) above.

3 Compare and Contrast the Asynchronous Transmission Mode and Token Ring architecture of LAN using the following outline:
   i. Architecture/ topology
   ii. Operation
   iii. Redundancy/ fail-safe provision
   iv. Fault isolation
   v. Expansion strategy

4 a. What are Protocols and what role do they play in Internetworking?

   b. Compare and contrast the layer structures of the OSI reference model and TCP/IP.

   c. The Application layer of TCP/IP contains the following protocols: SMTP, TELNET, FTP, and DNS. Explain the functions of each of these protocols and indicate the underlying or lower protocols used in delivering their respective services.

5. a(i) Give a tabular description of data rate of popular digital circuit standards
   (ii) Write short notes on the following: 1. Lower capacity circuit; 2.Intermediate capacity circuit; 3.Highest capacity circuit
   b(i) Illustrate the concept of ISDN technology as a large scale subscriber's digital services
   (ii) DSL provides digital services across local loop. Discuss.
Describe Asynchronous DSL and High-Rate DSL

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Second Semester, 2007/2008 Session

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INSTRUCTION: ANSWER FOUR QUESTIONS
TIME: 2 HOURS

1. Explain the following terms as they relate to networking and interconnectivity:
   i. Information Society
   ii. Knowledge Economy
   iii. Digital Divide / Bridge
   iv. National Information Infrastructure
   v. Global Village.

2 a. Distinguish between shared Local Area Network and Direct point-to-point network.
b.
   i. Outline the components required to build a Local Area Network.
   ii. Briefly describe the functions of the components listed in (bi) above.

3 Compare and Contrast the Fibre Distributed Data Interconnect (FDDI) and 100/1000 Base T models of LAN using the following outline:
   i. Architecture/ topology
   ii. Operation
   iii. Redundancy/ fail-safe provision
   iv. Fault isolation
   v. Expansion strategy

4 a. Transmission Control Protocol/ Internet Protocol (TCP/IP) is a suite of protocols that drives the global Internet. Describe the protocols found at each layer and their functions

b. Explain the strength and limitations of the following interconnectivity systems:
   i. Switch
   ii. Router
   iii. Repeater/hub
   iv. Bridge

5 ai.. What are the functions of ISDN from a Subscriber viewpoint? ii Describe the functions of DSU and CSU in leased digital circuits from a common carrier
b. Briefly describe Synchronous Transport Signal) STS) standard rate used in High Capacity Circuits.

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B.Sc. Hons. (Computer Science) Degree Examination
Second Semester, 2008/2009 Session October 2009

CSC 423: COMPUTER NETWORKS
INSTRUCTION: ANSWER FOUR QUESTIONS
TIME: 2 HOURS

1. (a) Identify and discuss the attributes of various Network media.
b. Discuss comprehensively the differences between Routers and Repeaters or Bridges.
c. What is Collision Domain? Describe how this effect could be reduced using a Router.

2. a. An organization is granted the block 211.17.180.0/24. The Administrator wants to create 32 subnets.

i. Determine the subnet mask ii. Determine the number of addresses in the 1st subnet.
iii. Determine the 1st and last address in the 1st subnet. iv. Determine the 1st and the last address in the last subnet (subnet 32).

.b Differentiate between Classfull and Classless addresses.

. Write the following mask in slash notation (/n)
i. 255.255.255.0 ii. 255.0.0.0 iii. 255.255.224.0 iv. 255.255.240.0

3. Compare and Contrast the Asynchronous Transmission Mode (ATM) and Fibre Distributed Data Interconnect (FDDI) architecture of LAN using the following outline:
i. Architecture/ topology ii. Operation iii. Redundancy/ fail-safe provision
iv. Fault isolation v. Expansion strategy

4 . a. What are Protocols and what role do they play in Internetworking?

b. Compare and contrast the layer structures of the OSI reference model and TCP/IP.

c. The Application layer of TCP/IP contains the following protocols: SMTP, TELNET, FTP, and DNS. Explain the functions of each protocol and indicate the underlying TRANSPORT layer protocol used in delivering the respective service.

5a.i. Explain the term"Internet Governance". ii. Discuss the roles played by stakeholders in ensuring a secure, stable global Internet.

b. Describe the specific responsibilities of each of the following bodies in Internet Governance: i. Internet Architecture Board (IAB) ii. Internet Corporation for Assigned Names and Numbers (ICANN) iii. Internet Engineering Task Force (IETF) iv. Internet Society (ISOC).

UNIVERSITY OF LAGOS
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B.Sc. Hons. (Computer Science) Degree Examination
Second Semester, 2009/2010 Session September 2010

CSC 423: COMPUTER NETWORKS
INSTRUCTION: ANSWER FOUR QUESTIONS
TIME: 2 HOURS

1a. Describe the role of Computer networks in the following Information Technology paradigm: i. Information Society ii. Knowledge Economy iii. E-Services

1b. What is the World Summit in Information Society (WSIS)? ii. Explain in what ways WSIS plans to bridge the Digital Divide between the rich North and the developing South.

2a. Compare and Contrast the network topology adopted in Ethernet 100/1000 Base T and Fibre Distributed Data Interconnect (FDDI).

2bi. What is Carrier Sense Multiple Access /Collision Detect (CSMA/CD)? ii. Show how Collision is resolved in an Ethernet bus network using Binary Exponential Back off.

3a. What are Standards and Protocols?

3 b. Explain the roles of the following bodies in ensuring Standards and regulation in the global IT world: i. ISO ii. ITU iii. NITDA iv. NCC

3c. The Transport layer of TCP/IP contains the following protocols: UDP, TCP, and VoIP. Explain the functions of each protocol.

4a. Using diagrams illustrate and describe the architecture and components of the global Internet.
4b. Describe the roles and functions of the following bodies in Internet Governance (IG): i. Internet Corporation for Assigned Names and Numbers (ICANN) ii. Internet Society (ISOC)

5a. An organization is granted the block 210.17.181.0/24, and the Network Administrator intends to create 16 Subnets. Answer the following questions:
i. What is the subnet mask? ii. Find the number of addresses in the 1st subnet
iii. What are the first and last addresses of the 2nd subnet?
iv. Find the 1st and the last address in the last subnet (subnet 16)

5b.i. What is the chief advantage of CIDR over the original Classful addressing scheme? ii. What is the address range of the following? (I). 196.45.48.0/27 (II). 196.45.48.32/27 (III).196.45.48.64/26 (IV). 196.45.58.0/25 (V). 196.45.62.0/19