

Tutorial Letter 201/1/2018

Computer Networks

COS2626

Semester 1

School of Computing

This tutorial letter contains the solution to Assignment 01 for semester1

BARCODE



CONTENTS

	<i>Page</i>
1 INTRODUCTION	3
2 ERRATA – QUESTION 20	3
3 SOLUTION TO ASSIGNMENT 01: SEMESTER 1	4

To be admitted to the examination, you must submit at least **ONE** assignment before the due date. The due dates for the assignments are as follows:

Assignment 01	9th March 2018
Assignment 02	29th March 2018
Assignment 03	13th April 2018

Your semester mark and the examination mark will determine your final mark. The semester mark is based on the marks awarded for each assignment.

1 INTRODUCTION

Dear Student,

This tutorial letter, designated COS2626/**201**/1/2018, contains the solution to Assignment 01 for Semester 1.

You should have at this stage received the following study material:

- COS2626/**101**/3/2018 (Start-up letter - Available under Official Study Material on *myUNISA*)
- COS2626/**201**/1/2018 (This tutorial letter – Solution to Assignment 01 - Available under Additional Resources on *myUNISA*)

2 ERRATA – QUESTION 20

Unfortunately, there is WAS error in question 20 of Assignment 01. The correct option is **option c** but was been captured as **option a** on the system.

**BEST WISHES FOR A SUCCESSFUL YEAR OF STUDY
THE LECTURERS
COS2626**

3 SOLUTION TO ASSIGNMENT 01: SEMESTER 1

Introduction to Networking

Question 1

Which TWO encryption protocols might be used to provide secure transmissions for browser and Web server communications?

- a. HTTP (Hypertext Transfer Protocol) and HTTPS (HTTP Secure)
- b. SSL (Secure Sockets Layer) and TLS (Transport Layer Security)**
- c. SSL and HTTP
- d. TCP (Transmission Control Protocol) and UDP (User Datagram Protocol)

Page: 3, Chapter 1

Question 2

Which client-server application allows an administrator to control a remote computer, but does not encrypt or secure the communication between the client and the server?

- a. Telnet**
- b. Remote Desktop
- c. FTP (File Transfer Protocol)
- d. SSH (Secure Shell)

Page: 4, Chapter 1

Question 3

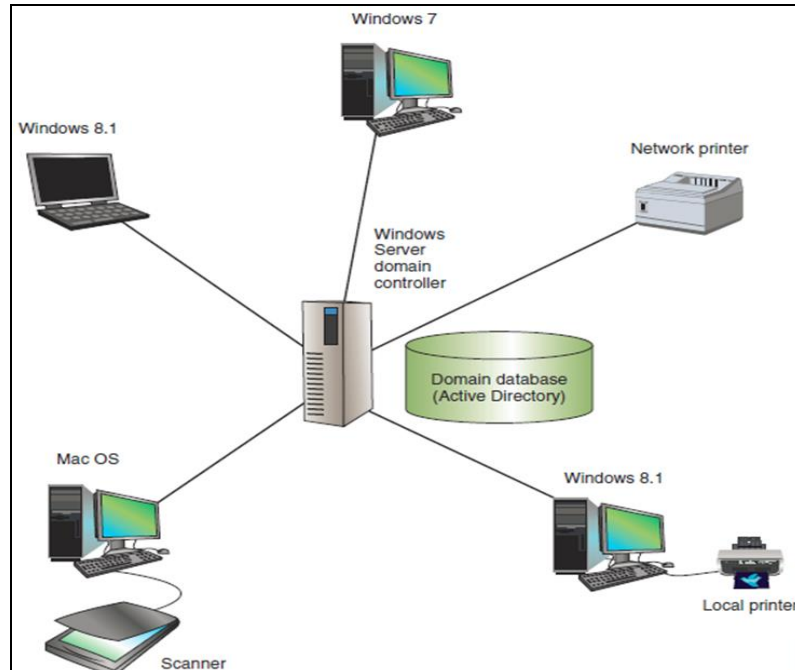
Which THREE types of services are considered part of unified communications or convergence?

- | | | |
|---------------------------------|--|-------------------------|
| a. File transfers; | print services; | conversational voice |
| b. User authentication; | streaming live audio and video; | print services |
| c. Web services; | email services | file services |
| d. Conversational voice; | streaming live audio and voice, | streaming stored |
| audio and voice | | |

Page: 6, Chapter 1

Question 4

In the following diagram, a Windows domain uses the _____ network model to control access to the network, where security on each computer or device is controlled by a centralized database on a domain controller.



- a. **client-server**
- b. peer-to-peer

Page: 10, Figure 1-5, Chapter 1

Question 5

A network consists of seven computers and a network printer all connected directly to one switch. Which network topology does this network use?

- a. bus topology
- b. ring topology
- c. hub topology
- d. **star topology**

Page: 12, Chapter 1

Question 6

In Question 5, suppose a new switch is connected to the first switch by way of a network cable and three computers are connected to the new switch. Which network topology is now used?

- a. star-ring topology
- b. **star-bus topology**
- c. hybrid topology
- d. mesh topology

Page: 13, Chapter 1

Question 7

Which one of the following typically outlines the proper handling procedures for substances such as chemical solvents and how to dispose of them?

- a. TCSP (Toxic Chemical Safety Procedure)
- b. (DHWDS) Dangerous and Hazardous Waste Disposal Sheet
- c. (ECHS) Environmental Chemical Hazard Sheet
- d. **(MSDS) Material Safety Data Sheet**

Page: 27, Chapter 1

How Computers Find Each Other on Networks
--

Question 8

The last part of an FQDN (Fully Qualified Domain Name) is called the _____.

- a. host name
- b. domain name
- c. **TLD (Top-Level Domain)**
- d. resolver

Page: 56, Chapter 2

Question 9

You have introduced a new secondary DNS (Domain Name Server) server online and notice that your monitoring software reports a significant increase in network traffic. Which TWO hosts on your network are likely to be causing the increased traffic and why?

- a. The caching and primary DNS servers, because the caching server is requesting zone transfers from the primary server
- b. The secondary and primary DNS servers, because the secondary server is requesting zone transfers from the primary server**
- c. The root and primary DNS servers, because the primary server is requesting zone transfers from the root server.
- d. The Web server and primary DNS server, because the Web server is requesting zone transfers from the primary DNS server.

Page: 61, Chapter 2

Question 10

Several types of records, called resource records are kept in a DNS database. A _____ record is used for reverse lookups, to provide a host name when you know its IP address.

- a. A (Address)
- b. AAAA (Address) record
- c. CNAME (Canonical Name)
- d. PTR (Pointer)**

Page: 63, Chapter 2

Question 11

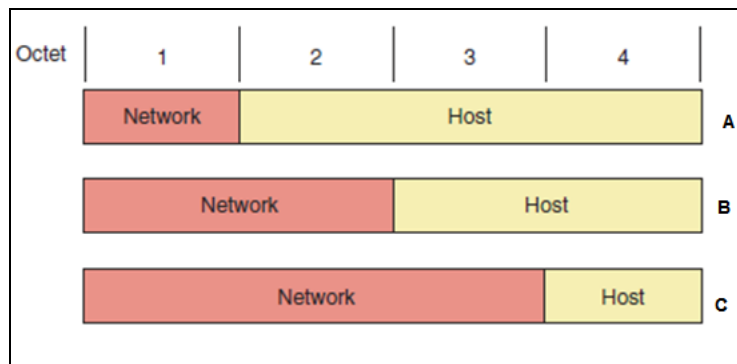
What decimal number corresponds to the binary number 11111111?

- a. 255**
- b. 256
- c. 127
- d. 11111111

Page: 67, Chapter 2

Question 12

The following diagram depicts the network portion and host portion for each class of IP address. Which IP class is denoted by the symbol 'C' in the following diagram?



- a. Class A
- b. Class B
- c. **Class C**
- d. Class D

Page: 68, Figure 2-11, Chapter 2

Question 13

Which statement (s) regarding NAT (Network Address Translation) is (are) CORRECT?

- i. NAT is a technique designed to conserve public IP addresses needed by a network.
 - ii. One of the advantages of NAT is security; the gateway hides the entire private network behind this one address.
 - iii. Two variations of NAT are SNAT (Static Network Address Translation) and ENAT (Extensive Network Address Translation).
- a. **only i and ii**
 - b. only ii and iii
 - c. only i
 - d. i, ii and iii

Pages: 71-72, Chapter 2

Question 14

Which TWO ipconfig commands are used to show the DNS resolver cache information and clear the name resolver cache?

- i. ipconfig /releasedns
- ii. ipconfig /alldns
- iii. ipconfig /displaydns
- iv. ipconfig /flushdns

- a. i and ii
- b. ii and iii
- c. iii and iv**
- d. i and iv

Page: 83, Table 2-8, Chapter 2

How Data is Transported over Networks**Question 15**

At what layer of the OSI (Open Systems Interconnection) model would a TCP or UDP header be added to a payload?

- a. Layer 7
- b. Layer 4**
- c. Layer 2
- d. Layer 1

Page: 107, Chapter 3

Question 16

UDP's lack of sophistication makes it _____efficient than TCP.

- a. more**
- b. less

Page: 113, Chapter 3

Question 17

Study the following list of CHARACTERISTICS.

- Layer 2 protocol that uses IP in Layer 3
- Used with IPv4
- Obtains MAC (physical) address of host or node
- Creates database that maps IP address to MAC addresses

The above list depicts the characteristics of the _____ protocol.

- a. RARP (Reverse Address Resolution Protocol)
- b. ARP (Address Resolution Protocol)**
- c. DHCP (Dynamic Host Configuration Protocol)
- d. ICMP (Internet Control Message Protocol)

Page: 120, Chapter 3

Question 18

Which one of the following routing protocol enables routers to communicate beyond neighbouring routers, allowing each router to create a map of an entire network?

- a. Distance-vector routing protocols
- b. Link-state routing protocols**
- c. Exterior gateway protocols
- d. Border gateway protocols

Page: 129, Chapter 3

Question 19

Routers rate the reliability and priority of a routing protocol's data based on certain criteria. Which routing protocol criteria is defined as the time it takes to recognize a best path change in the event of a change network outage?

- a. administrative distance detection
- b. convergence time**
- c. overhead calculation
- d. downed path detection

Page: 128, Chapter 3

Question 20

Which one of the following routing protocols are used by border routers and exterior routers to distribute data outside of an autonomous system?

- a. OSPF (Open Shortest Path First)
- b. EIGRP (Enhanced Interior Gateway Routing Protocol)
- c. BGP (Border Gateway Protocol)**
- d. IS-IS (Intermediate System to Intermediate System)

Page: 131, Chapter 3

Question 21

By default, the pathping command sends HOW MANY pings per hop?

- a. 50
- b. 100**
- c. 200
- d. 500

Page: 138, Chapter 3

Structured Cabling and Networking Elements**Question 22**

Which standard is also known as structured cabling?

- a. TIA/EIA-568 Commercial Building Wiring Standard**
- b. TIA/EIA RS-232 (Recommended Standard 232)
- c. TIA/EIA 568A Standard
- d. TIA/EIA 568BA Standard

Page: 159, Chapter 4

Question 23

Which one of the following is not a likely source of EMI (Electromagnetic Interference)?

- a. power lines
- b. motors
- c. fiber optic cables**
- d. microwaves

Page: 164, Chapter 4

Question 24

The radius of the maximum arc into which you can loop a cable without impairing data transmission is known as _____.

- a. metal stress factor
- b. arc coefficient
- c. bend radius**
- d. flex rating

Page: 164, Chapter 4

Question 25

Which networking device on today's racks does nothing to the data transmitted on a line other than pass it along through the connection?

- a. Patch panel**
- b. Punch-down block
- c. 110 block
- d. Hub

Page: 165, Chapter 4

Question 26

Which TWO terms are used to describe a UPS (Uninterruptible Power Supply) that provides continuous voltage to a device by switching virtually instantaneously to the battery when it detects a loss of power?

- i. offline UPS
 - ii. standby UPS
 - iii. standby power supply
 - iv. failover power supply
-
- a. i and ii
 - b. ii and iii**
 - c. iii and iv
 - d. i and iv

Page: 176, Chapter 4

Question 27

What are the MINIMUM and MAXIMUM sizes for an Ethernet frame?

- a. 46 and 64 bytes
- b. 46 and 128 bytes
- c. 64 and 1518 bytes**
- d. 64 and 1600 bytes

Page: 185, Chapter 4

Question 28

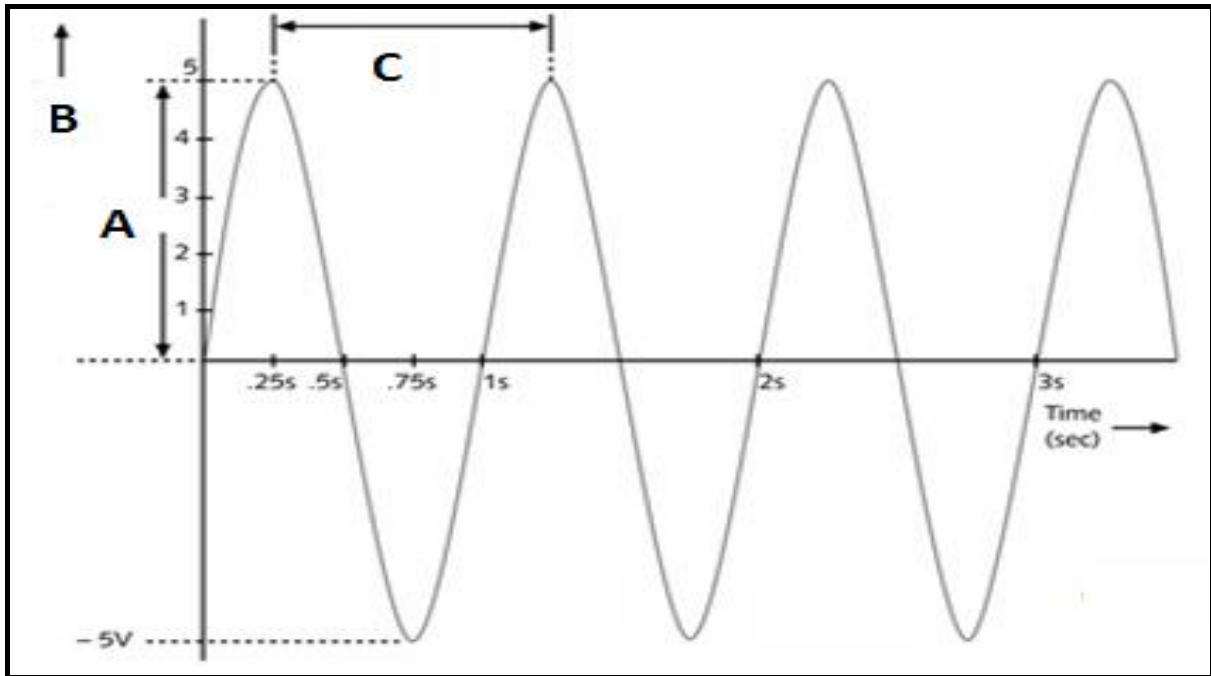
In the context of building and maintaining network documentation, which one of the following terms best describes the process of discovering and identifying the devices on a network?

- a. network diagram
- b. wiring scheme
- c. network mapping**
- d. network graphing

Page: 190, Chapter 4

Question 29

Study the following diagram of a typical analog signal. 'C' denotes the wave's _____ and is _____.



- a. amplitude; a measure of its strength at any given point
- b. wavelength; the distance between corresponding points on a wave's cycle**
- c. phase; the progress of a wave over time in relationship to a fixed point
- d. voltage; the strength of the signal

Pages: 211-212, Figure 5-1, Chapter 5

Question 30

In modulation, a simple wave called a (n) _____ wave, is combined with another analog signal to produce a unique signal that gets transmitted from one node to another.

- a. carrier**
- b. data
- c. information
- d. discrete

Pages: 214-215, Chapter 5

Question 31

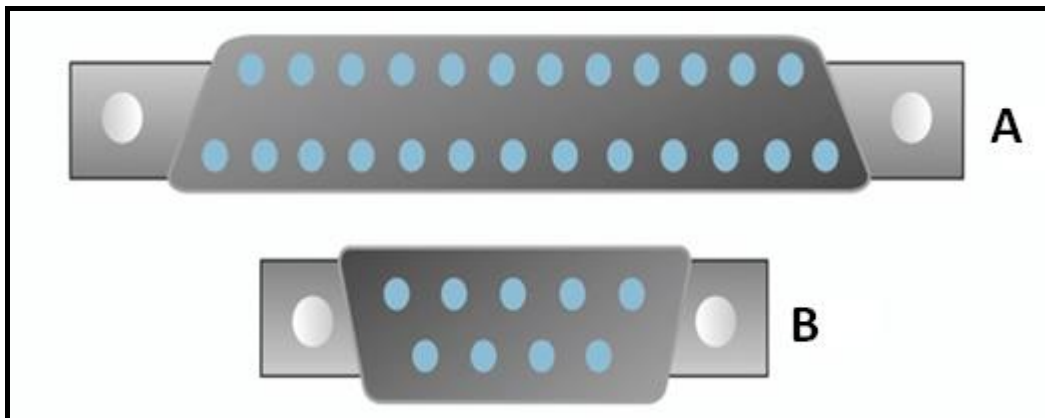
_____ is a technology used with fiber-optic cable that enables one fiber-optic connection to carry multiple light signals simultaneously.

- a. Statistical multiplexing
- b. WDM (Wavelength Division Multiplexing)**
- c. TDM (Time Division Multiplexing)
- d. FDM (Frequency Division Multiplexing)

Page: 218, Chapter 5

Question 32

What type of connectors do 'A' and 'B' in the following diagram respectively represent?



- a. RJ (Registered Jack) -45; RJ-11
- b. ST (Straight Tip); SC (Subscriber connector or Standard Connector)
- c. LC (Local Connector); MT-RJ (Mechanical Transfer Registered Jack)
- d. DB-25; DB-9**

Page: 237, Figures 5-28 – 5-29, Chapter 5

Question 33

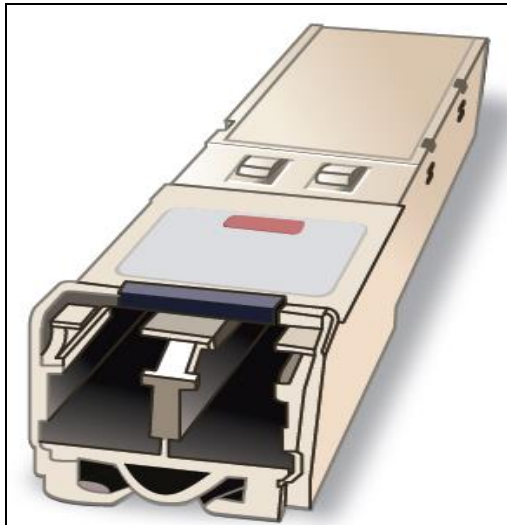
A hardware component that can be changed without disrupting operations is known as ____.

- a. fast-synching
- b. hot-synching
- c. hot-swappable**
- d. fast-swappable

Page: 247, Chapter 5

Question 34

The following diagram illustrates a _____.

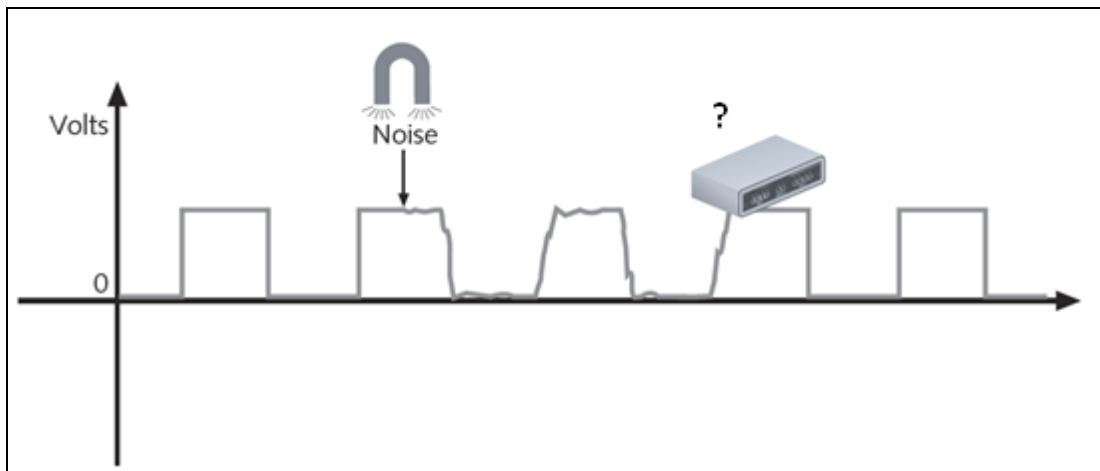


- a. **SFP (small form-factor pluggable) transceiver for use with fiber connections**
- b. GBIC (Gigabit interface converter) with an RJ-45 port
- c. Expansion board NIC
- d. PCIe (Peripheral Component Interconnect Express) expansion board NIC

Pages: 247-248, Figure 5-41, Chapter 5

Question 35

Study the following diagram.



- a. **This diagram illustrates how a digital signal is distorted by noise and then repeated.**
- b. This diagram illustrates how an analog signal is distorted by noise and then repeated.
- c. This diagram illustrates how a digital signal is distorted by noise and then amplified.
- d. This diagram illustrates how an analog signal is distorted by noise and then amplified.

Page: 253, Figure 5-46, Chapter 5

Wireless Networking
Question 36

Which of the following are TWO different types of attacks against Bluetooth connections that can be used to send unsolicited data, or download data without permission?

- i. bluejacking
- ii. bluesnarfing
- iii. bluesniffing
- iv. bluespoofing

- a. **i and ii**
- b. ii and iii
- c. iii and iv
- d. i and iv

Page: 284, Chapter 6

Question 37

Study the following statements:

- Wireless nodes transmit directly to each other
- Use wireless NICs
 - No intervening connectivity device

Which WLAN (Wireless LAN) Architecture is described by the above statements?

- a. infrastructure WLAN
- b. ad hoc WLAN**
- c. proprietary WLAN
- d. open source WLAN

Pages: 286-287, Chapter 6

Question 38

Suppose your Windows workstation's wireless network adapter is configured to use the 802.11b wireless networking standard. Also, suppose a café you visit has an 802.11g access point. Assuming you have the correct SSID (Service Set Identifier) and logon credentials, what will happen when you attempt to associate with the café's wireless network?

- a. Your wireless networking client will be able to see the access point, but unable to associate with it.
- b. Your wireless client will not be able to see the access point.
- c. Your wireless networking client will be able to see the access point and successfully associate with it.**
- d. Your wireless networking client will be able to see the access point and attempt to associate with it, but the incompatible frequencies will prevent successful authentication.

Page: 291, Chapter 6

Question 39

In IEEE (Institute of Electrical and Electronics Engineers) terminology, a group of stations that share an access point are said to be part of a _____.

- a. ESS (Extended Service Set)
- b. BSS (Basic Service Set)**
- c. MSS (Modified Service Set)
- d. GSS (Generic Service Set)

Page: 295, Chapter 6

Question 40

Which 802.11 frame type is involved in association and reassociation, including probe and beacon frames?

- a. **management frames**
- b. control frames
- c. data frames
- d. extended frames

Page: 298, Chapter 6