

FINAL
Examination Paper

(COVER PAGE)

Session : August 2016

Programme : Diploma In Information And Communication Technology (DICTN)

Course : ICT1105: Fundamentals of Networking

Date of Examination : 06 December, 2016 (Tuesday)

Time : 8:00am – 10:00am Reading Time : Nil

Duration : 2 Hours

Special Instructions :

SECTION A: Answer ALL multiple choice questions.

SECTION B: Answer any THREE (3) essay questions.

Materials permitted : Nil

Materials provided : Nil

Examiner(s) : Victor Raj Kolintiar and Vasuky Mohanan

Moderator : Noor Hasrina

This paper consists of 7 printed pages, including the cover page

DIPLOMA IN INFORMATION AND COMMUNICATIONS TECHNOLOGY
PROGRAMME (DICTN)
ICT1105: FUNDAMENTALS OF NETWORKING
FINAL EXAMINATION: AUGUST 2016 SESSION

Instruction: This paper consists of **TWO (2) SECTIONS**. Answer **ALL** questions in **SECTION A** and any **THREE (3)** questions in **SECTION B**.

SECTION A: Answer **ALL** questions in the OMR sheet provided. (40 marks)

1. Your organization contracts with a cloud computing company to store all of its data. The company promises 99.99% uptime. If it lives up to its claims, for how many minutes each year can you expect your data to be unavailable?
 - A. Approximately 448 minutes
 - B. Approximately 99 minutes
 - C. Approximately 52 minutes
 - D. Approximately 14 minutes

2. You are a networking technician in a radiology clinic, where physicians use the network to transmit and store patients' diagnostic results. Shortly after a new wing, which contains X-ray and magnetic resonance imaging (MRI) machines, is added to the building, computers in that area begin having intermittent problems saving data to the file server. After you have gathered information, identified the symptoms, questioned users, and determined what has changed, what is your next step in troubleshooting this problem?
 - A. Establish a plan of action to resolve the problem.
 - B. Escalate the problem.
 - C. Document findings, actions, and outcomes.
 - D. Establish a theory of probable cause.

3. You work for an ISP. Several of your customers have called to complain about the slow response from a popular Web site. You suspect that network congestion is at fault. Which TCP/IP utility would help you determine where the congestion is occurring?
 - A. FTP
 - B. Nslookup
 - C. Nostat
 - D. Tracert

4. Which of the following WAN topologies is the most fault tolerant?
 - A. Full mesh
 - B. Peer-to-peer
 - C. Client-server
 - D. Hierarchical

5. You have just rearranged the access points on your small office network. Now a group of employees complains that they cannot reliably get their workstations to connect with a new 802.11ac access point. You have confirmed that the workstations are using the correct SSID, security type, and passphrase. You have also confirmed that the access point is on and functioning properly because when you stand in the computer room where it's located, you can connect to the access point from your smartphone. Which of the following is likely preventing the other users' workstations from associating with the new access point?
- A. The users are attempting to log on using incorrect user IDs.
 - B. The workstations are located beyond the access point's range.
 - C. The workstations are set to use 802.11g.
 - D. The users have turned off their wireless antennas.
6. What is the network ID for a network that contains the group of IP addresses from 194.73.44.10 through 194.73.44.254 and is not subnetted?
- A. 194.73.0.0
 - B. 194.73.44.1
 - C. 194.73.44.0
 - D. 194.73.44.255
7. In NAT, how does an IP gateway ensure that outgoing traffic can traverse public networks?
- A. It modifies each outgoing frame's Type field to indicate that the transmission is destined for a public network.
 - B. It assigns each outgoing packet a masked ID via the Options field.
 - C. It interprets the contents of outgoing packets to ensure that they contain no client-identifying information.
 - D. It replaces each outgoing packet's Source address field with a public IP address.
8. You suspect that a machine on your network with the host name PRTSRV is issuing excessive broadcast traffic on your network. What command can you use to determine this host's IP address?
- A. `netstat PRTSRV`
 - B. `ipconfig PRTSRV`
 - C. `nslookup PRTSRV`
 - D. `nbstat PRTSRV`

9. Your company is experiencing a growth spurt and is ready to invest in a more sophisticated disaster recovery plan. Currently the only backup plan consists of a few spare computers in a storage closet, with data on the servers duplicated weekly to an off-site backup service. The owners of the company have committed to acquiring additional servers to duplicate critical servers in their current network, and they want the servers to be configured identically to the servers now in use. The new servers will be stored at an off-site data center, and updated every time the on-site servers are updated. What type of disaster recovery site is your company creating?
- A. Warm site
 - B. Ambient site
 - C. Cold site
 - D. Hot site
10. While troubleshooting a workstation connectivity problem, you type the following command: `ping 127.0.0.1`. The response indicates that the test failed. What can you determine about that workstation?
- A. Its network cable is faulty or not connected to the wall jack.
 - B. Its TCP/IP stack is not installed properly.
 - C. Its DHCP settings are incorrect.
 - D. Its DNS name server specification is incorrect.
11. In IPv6, which of the following is the loopback address?
- A. `::1`
 - B. `127:0:0:0:0:0:0:1`
 - C. `FE80::1`
 - D. `1.0.0.1`
12. Which of the following devices operate only at the Physical layer of the OSI model?
- A. Switch
 - B. Router
 - C. Bridge
 - D. Repeater

13. Due to popular demand from employees who need to roam from one floor of your office building to another, you are expanding your wireless network. You want to ensure that mobile users enjoy uninterrupted network connectivity without having to reconfigure their workstations' wireless network connection settings. Which of the following variables must you configure on your new access points to match the settings on existing access points?
- A. Administrator password
 - B. Scanning rate
 - C. SSID
 - D. IP address
14. Which transport protocol and TCP/IP port does telnet use?
- A. UDP, port 23
 - B. TCP, port 23
 - C. UDP, port 21
 - D. TCP, port 21
15. What is the purpose of an AAAA resource record in your DNS zone file?
- A. It identifies a host's IPv4 address.
 - B. It identifies a host's IPv6 address.
 - C. It identifies a host's MAC address.
 - D. It identifies a mail server address.
16. Your 100Base-T network is wired following the TIA/EIA 568B standard. As you make your own patch cable, which wires do you crimp into pins 1 and 2 of the RJ-45 connector?
- A. White with orange stripe and orange
 - B. White with brown stripe and brown
 - C. White with blue stripe and blue
 - D. White with red stripe and red
17. What is the default subnet mask for the following IP address: 154.13.44.87?
- A. 255.255.255.255
 - B. 255.255.255.0
 - C. 255.255.0.0
 - D. 255.0.0.0

18. A friend calls you for help with his home office Internet connection. He is using an 802.11n access point/router connected to a DSL modem. The access point/router's private IP address is 192.168.1.1 and it has been assigned an Internet routable IP address of 76.83.124.35. Your friend cannot connect to any resources on the Internet using his new Windows workstation. You ask him to run the ipconfig command and read the results to you. He says his workstation's IP address is 192.168.1.3, the subnet mask is 255.255.255.0, and the default gateway address is 192.168.1.10. What do you advise him to do next?
- A. Display his DNS information.
 - B. Change his gateway address.
 - C. Change his subnet mask.
 - D. Try pinging the loopback address.
19. Which OSI layer(s) operate differently in wired versus wireless network connections?
- A. Layer 1
 - B. Layer 2
 - C. Layers 1, 2, and 3
 - D. Layers 1 and 2
20. Which of the following devices separates broadcast domains?
- A. Router
 - B. Switch
 - C. Bridge
 - D. Repeater

SECTION B: Answer any **THREE (3)** questions in the answer booklet provided.
(60 marks)

Question 1

- (a) Explain **FIVE (5)** networking standard organizations. (10 marks)
- (b) Compare analog and digital signals. (10 marks)

(Total: 20 marks)

Question 2

- (a) Identify and explain **FIVE (5)** basic network topologies. (10 marks)
- (b) Describe the steps in installing and configuring **Network Interface Card (NIC)** hardware. (10 marks)
- (Total: 20 marks)**

Question 3

- (a) Describe the steps for troubleshooting network problems. (10 marks)
- (b) Guided media impairments include noise, attenuation and delay distortion. Define noise and discuss the **FOUR (4)** categories of noise. (10 marks)
- (Total: 20 marks)**

Question 4

- (a) Differentiate simplex, half-duplex and full-duplex data transmissions. (6 marks)
- (b) Draw and explain the **SEVEN (7)** layers of the **Open Systems Interconnection (OSI)** model. (14 marks)
- (Total: 20 marks)**

