

FINAL
Examination Paper

(COVER PAGE)

Session : August 2016

Programme : Diploma In Information And Communication Technology (DICTN)

Course : ICT2103: Network Design, Testing And Implementation

Date of Examination : 03 December, 2016 (Saturday)

Time : 2:00pm – 4:00pm Reading Time : Nil

Duration : 2 Hours

Special Instructions :

SECTION A: Answer **ALL** multiple choice questions.

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

IMPORTANT NOTE : **THIS PAPER SHOULD NOT BE TAKEN OUT OF THE EXAMINATION HALL**

Materials permitted : Non-programmable Calculators

Materials provided : OMR Sheets

Examiner(s) : Asvhini Subramaniam and Victor Raj Kolintiar

Moderator : Associate Professor Dr Abdullah Gani

This paper consists of 6 printed pages, including the cover page

DIPLOMA IN INFORMATION AND COMMUNICATIONS TECHNOLOGY
PROGRAMME (DICTN)
ICT2103: NETWORK DESIGN, TESTING AND IMPLEMENTATION
FINAL EXAMINATION: AUGUST 2016 SESSION

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

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

1. A network should carry the maximum amount of traffic possible for a given financial cost refers as _____.
 - A. Adaptability
 - B. Bandwidth
 - C. Affordability
 - D. Capacity

2. The amount of data can be carried from one point to another in a given time period is called _____.
 - A. Scope
 - B. Capacity
 - C. Bandwidth
 - D. Limitation

3. Which of the following is private IP address?
 - A. 192.168.24.43
 - B. 168.172.19.39
 - C. 172.15.14.36
 - D. 12.0.0.1

4. In distance vector routing algorithm, the routing tables are updated _____.
 - A. by exchanging information with the neighbours
 - B. automatically
 - C. using the backup database
 - D. by the server

5. An radio frequency signal traveling through objects of various sorts can be affected by many different problems, **excluding** _____.
 - A. Reflection
 - B. Absorption
 - C. Refraction
 - D. Abortion

6. What is the use of Ping command?
- A. To test a device on the network is reachable
 - B. To test a hard disk fault
 - C. To test a bug in an Application
 - D. To test a Printer Quality
7. Which of the following is **not** a type of Computer Network?
- A. Local Area Network (LAN)
 - B. Personal Area Network (PAN)
 - C. Remote Area Network (RAN)
 - D. Metropolitan Area Network (MAN)
8. Controlling access to a network by analyzing the incoming and outgoing packets is called _____.
- A. IP Filtering
 - B. Data Filtering
 - C. Packet Filtering
 - D. Firewall Filtering
9. Which of the following IP address class is Multicast?
- A. Class A
 - B. Class B
 - C. Class C
 - D. Class D
10. Fragmentation means _____.
- A. adding of small packets to form large packet
 - B. breaking large packet into small packets
 - C. combining large packets in to a single packet
 - D. forwarding a packet through different networks
11. Firewalls are used for _____.
- A. routing
 - B. security
 - C. tunneling
 - D. congestion control

12. DHCP supports _____ allocation for IP address allocation.
- A. manual
 - B. primary
 - C. secondary
 - D. all
13. _____ refers to the ease of use with which network users can access the network and services. Whereas _____ focuses on making network managers' jobs easier, usability focuses on making network users' jobs easier.
- A. Affordability; manageability
 - B. Adaptability; usability
 - C. Manageability; usability
 - D. Usability; manageability
14. EIGRP can scale to _____ of routing nodes.
- A. tens
 - B. hundreds
 - C. thousands
 - D. millions
15. Which of the following steps will help you effectively plan and execute a security strategy?
- A. Identify network assets
 - B. Analyze security risks
 - C. Develop a security plan
 - D. All of the above
16. A _____ is a formal statement of the rules by which people who are given access to an organization's technology and information assets must abide.
- A. company policy
 - B. IT policy
 - C. security policy
 - D. government policy
17. Many systems use *two-factor authentication*, which requires a user to have _____ proofs of identity.
- A. one
 - B. two
 - C. three
 - D. four

18. Which of the following contention mechanism is used by Ethernet?
- A. Token passing
 - B. CSMA/CD
 - C. CSMA/CA
 - D. Host polling
19. The benefits of hierarchy in an addressing and routing model, **except** _____.
- A. Scalability
 - B. Stability
 - C. Optimized performance
 - D. Security
20. A *topology* is a map of an internetwork that indicates _____.
- A. network segments
 - B. interconnection points
 - C. user communities
 - D. all of the above

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

Question 1

- (a) Identify and explain **FIVE (5)** typical network design business goals. (10 marks)
- (b) Assume that a packet switch has 20 users, each offering packets at a rate of 10 packets per second. The average length of packets is 1024 bits. The packet switch needs to transmit this data over a 256-Kbps WAN circuit. Calculate the average number of packets in the queue. (10 marks)

(Total: 20 marks)

Question 2

- (a) Define the **FIVE (5)** types of network management processes according to the ISO. (10 marks)
- (b) Define *efficiency*. Explain **THREE (3)** dependencies of network efficiency. (10 marks)

(Total: 20 marks)

Question 3

(a) You are assigned the task to subnet the Class C network address 192.168.25.0. Do subnetting, whereby you have approximately 55 nodes per subnet. Based on the given information, answer the following questions(*show your calculations steps*):

- (i) What is the number of hosts per subnet?
- (ii) What is the number of subnets in this network?
- (iii) What is the block size of each subnet?
- (iv) What subnet mask should you use?
- (v) What is the address of all subnets in this network?
- (vi) What is the address of the last node on the last subnet?
- (vii) What is the broadcast address for this node identified in part (vi)?

(10 marks)

(b) Explain **FIVE (5)** security tradeoffs.

(10 marks)

(Total: 20 marks)**Question 4**

(a) Assume that a 10-Mbps Ethernet network has 200 managed devices and each device is monitored for 10 characteristics. The polling interval is every 5 seconds and that each request and response is a single 64-byte packet. Calculate a rough estimate of the traffic load for this network. Justify if the traffic load is acceptable.

(10 marks)

(b) Discuss **FOUR (4)** types of tests to run against the network designed.

(10 marks)

(Total: 20 marks)

~ The End ~

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