INTI International University & Colleges

FINAL
Examination Paper

(COVER PAGE)

Session	:	**APRIL 2017**
Programme	:	Diploma In Information And Communication Technology (DICTN)
Course	:	**ICT2103: Network Design, Testing And Implementation**
Date of Examination	:	28 July, 2017 (Friday)
Time	:	5:00pm – 7:00pm 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) : **Victor Raj Kolintiar** and Asvhini Subramaniam

Moderator : Associate Professor Dr Abdullah Gani

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

DIPLOMA IN INFORMATION AND COMMUNICATIONS TECHNOLOGY PROGRAMME (DICTN)
ICT 2103: NETWORK DESIGN, TESTING AND IMPLEMENTATION
FINAL EXAMINATION: APRIL 2017 SESSION

Section A: (40 marks)

Instruction: This section consists of **Twenty (20)** questions. Answer **ALL** questions in the OMR sheet provided.

1. Network congestion occurs_____.

   A. in case of traffic overloading
   B. when a system terminates
   C. when connection between two nodes terminates
   D. none of the mentioned

2. An attempt to make a computer resource unavailable to its intended users is called _____.

   A. denial-of-service attack
   B. virus attack
   C. worms attack
   D. botnet process

3. Which of the following delay is faced by the packet when travels from one end of the system to another end?

   A. Propagation delay
   B. Queuing delay
   C. Transmission delay
   D. All of the above

4. What is the Demilitarized Zone?

   A. The area between firewall & connection to an external network
   B. The area between ISP to Military area
   C. The area surrounded by secured servers
   D. The area surrounded by the Military

5. The amount of data that can be carried from one point to another in a given time period is called _____.

A. Scope
B. Capacity
C. Bandwidth
D. Limitation

6. The management of data flow between computers or devices or between nodes in a network is called _____.

A. Flow control
B. Data control
C. Data management
D. Flow management

7. 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

8. Which of the following is reliable communication?

A. IP
B. TCP
C. UPD
D. All of the above

9. For error detection _____is used by the higher layer protocols (TCP/IP).

A. Bit-sum
B. Checksum
C. Data-sum
D. Error-bit

10. The benefits of hierarchy in an addressing and routing model, ***except*** _____.

A. Scalability
B. Stability
C. Optimized performance
D. Security

11. 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

12. Which of the following is **NOT** a distance-vector protocol?

A. RIP
B. OSPF
C. IGRP
D. BGP

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. A radio frequency signal traveling through objects of various sorts can be affected by many different problems, including the following, **except**:

A. Reflection
B. Adaption
C. Refraction
D. Diffraction

15. To maintain interconnectivity even when one or more links are down, redundant network designs include a _____ for packets to travel when there are problems on the primary path.

A. load balancing
B. backup paths
C. bandwidth utilization
D. routing protocol

Section B: (60 marks)

Instruction: This section consists of **FOUR (4)** questions. Answer any **THREE (3)** questions in the answer booklet provided. All questions carry equal marks.

Question 1

(a) Compare and contrast the centralized versus distributed cabling topologies with **ONE (1)** example for each.

(6 marks)

(b) Explain **TWO (2)** fundamental media types used in campus network.

(4 marks)

(c) Explain **FIVE (5)** methods to check the health of the existing internetwork.

(10 marks)

Question 2

(a) List the **TWELVE (12)** steps program for the network security design.

(6 marks)

(b) Compare the selection criteria between Distance Vector and Link State algorithms and name **ONE (1)** routing protocols that use each algorithm.

(8 marks)

(c) 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.

(6 marks)

16. A _____ is a connection between devices in the same layer; can be an extra router, bridge, or switch added to connect two networks. It should be avoided because they cause unexpected routing and switching problems and make network documentation and troubleshooting more difficult.

A. open port
B. hidden door
C. loop hole
D. backdoor

17. A _____ is an emulation of a standard LAN that allows data transfer to take place without the traditional physical constraints placed on a network.

A. VLAN
B. VPN
C. Private LAN
D. None of the above

18. Which of the following contention mechanism is used by Ethernet?

A. Token passing
B. CSMA/CD
C. CSMA/CA
D. Host polling

19. Which of the following is private IP address?

A. 12.0.0.1
B. 168.172.19.39
C. 172.15.14.36
D. 192.168.24.43

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

Question 3

(a) You are assigned the task to subnet the Class C network address 192.168.30.0. Do subnetting, whereby you have approximately 45 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)** selection criteria for internetworking devices.

(10 marks)

Question 4

(a) Discuss **FOUR (4)** issues on wireless installation.

(10 marks)

(b) State the importance of optimizing the network and identify **FIVE (5)** Cisco Queuing Services.

(10 marks)

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