INTI International University & Colleges

FINAL
Examination Paper

(COVER PAGE)

Session	:	**AUGUST 2018**
Programme	:	Diploma In Information And Communication Technology (DICTN)
Course	:	**ICT2103: Network Design, Testing And Implementation**
Date of Examination	:	13 December 2018, (Thursday)
Time	:	11:00am – 1:00pm Reading Time : Nil
Duration	:	2 Hours

Special Instructions :

SECTION A: Answer **ALL** multiple choice questions in OMR sheet.

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 : Professor Dr Abdullah Gani

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

DIPLOMA IN INFORMATION AND COMMUNICATIONS TECHNOLOGY PROGRAMME (DICTN)
DIPLOMA IN INFORMATION TECHNOLOGY PROGRAMME (DITN)
ICT2103: NETWORK DESIGN, TESTING AND IMPLEMENTATION
FINAL EXAMINATION: AUGUST 2018 SESSION

Section A (40 marks)
Instructions: This section consists of **Twenty (20)** questions. Answer **ALL** questions in the OMR sheet provided.

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. This is ordinary telephone twisted pair wire, one of several physical media specified in the IEEE 802.3 standard for Ethernet Local Area Networks (LANs)

   A. 10BASE-F
   B. 10BASE-T
   C. 5BASE-T
   D. 100BASE-T

3. 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

4. 99.999% availability is equivalent to _____.

   A. 555 minutes downtime per year
   B. 55 minutes downtime per year
   C. 5 minutes downtime per year
   D. 1 minute downtime per year

5. 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

6. 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)

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. The omnidirectional antennas send out signals in _____.

A. all directions
B. two directions
C. no direction
D. one direction

9. A typical hierarchical topology consists of the following:

A. Core layer only
B. Core layer and distribution layer
C. Distribution layer and access layer
D. Core layer, distribution layer and access layer

10. Your company has a LAN in its downtown office and has now set up a LAN in the manufacturing plant in the suburbs. State the type of device(s) are needed to connect and enable everyone to share data and resources between the two LANs.

A. Hub
B. Router
C. Cable
D. Modem

11. Firewalls are used for _____.

A. routing
B. security
C. tunneling
D. congestion control

12. 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

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

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

15. The Asynchronous Transfer Mode (ATM) network is an example of _____.

A. message switched network
B. datagrams network
C. packet switching network
D. virtual circuit network

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. The Routing Information Protocol (RIP) is an intradomain routing based on _____ routing.

A. link state
B. distance vector
C. path vector
D. none of the above

18. Which of the following is the address of the router?

A. The subnet mask
B. The TCP address
C. The default gateway
D. The IP address

19. In Frame Relay, the _____ defines an average rate in bits per second.

A. access rate
B. excess burst size
C. committed burst size
D. committed information rate

20. Stephanie is in charge of a small network and wants to make it simple but secure. Which network(s) would be the best for Stephanie to set up?

A. WAN
B. Master Domain
C. Peer-to-peer
D. Server-based

Section B (60 marks)
Instructions: 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) Identify and explain **FIVE (5)** typical network design technical 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 128 bytes. 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)

Question 2

(a) Define the **FIVE (5)** types of network management processes according to the ISO.

(10 marks)

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

(10 marks)

Question 3

(a) You are assigned the task to subnet the Class C network address 192.168.20.0. Do subnetting, whereby you have approximately 50 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 subnet mask should you use?
(iv) What is the block size of each subnet?
(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) Describe **FOUR (4)** issues to be considered for a new wireless installation.

(10 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) List **TEN (10)** required contents for writing a network design documentation.
(10 marks)

~ The End ~

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