FINAL
Examination Paper
(COVER PAGE)

Session : August 2014

Programme : Diploma In Information And Communication Technology (DICTN/DICTI)

Course : ICT2103 / CSC2103: Network Design, Testing And Implementation

Date of Examination : December 5, 2014

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

Duration :  
2 Hours

Special Instructions : 

Answer any FOUR (4) questions.

Materials permitted : Standard Calculator

Materials provided : Nil

Examiner (s) : Mr. Victor Raj Kolintiar, Asvini Subramaniam.

Moderator : Associate Professor Dr. Abdullah Gani

This paper consists of 4 printed pages, including the cover page.
Instructions: This paper consists of SIX (6) questions. Answer any FOUR (4) questions in the answer booklet provided. All questions carry equal marks.

Question 1

(a) With an aid of a diagram, discuss the CISCO PD100 network lifecycle. (14 marks)

(b) Define the term “availability”. A company should not fail more than every 4000 hours or 166,666 days, the failure should be fixed within 1 hour. State the formula by identifying relevant information before calculating the availability of a given network. (6 marks)

(c) A packet switch has 5 users, each offering packets at a rate of 12 packets per second. The average length of packets is 1024-bits. The packet needs to transmit data over a 64-Kbps WAN circuit. Calculate the queue length (average number of packets in the queue). (5 marks)

Question 2

(a) You are required to subnet a Class C network having an address of 192.168.25.0. Create subnetting, whereby you have 30 nodes per subnet. Based on the information provided, answer the following question, with the necessary calculations.

(i) What is the number of subnets in this network?
(ii) What subnet mask should you use?
(iii) What is the network address for the last subnet?
(iv) What is the address of the last node on the last subnet?
(v) What is the broadcast address of the last subnet? (10 marks)

(b) Identify and explain FIVE (5) key components of a security policy of an organization. (15 marks)
Question 3
(a) Describe FOUR (4) issues to be considered for a new wireless installation. (8 marks)
(b) Differentiate centralized cabling scheme from distributed cabling scheme with aid of diagrams. (10 marks)
(c) Name any SEVEN (7) network assets. (7 marks)

Question 4
(a) Identify and explain the FIVE (5) popular types of traffic flows. (15 marks)
(b) Discuss FIVE (5) methods to check the health of the existing internetwork (10 marks)

Question 5
(a) Provide any TEN (10) goals for testing your network design to ensure correct selection of testing procedures and relevant tools. (10 marks)
(b) Explain TWO (2) firewall topologies to meet the security goals for any organization (10 marks)
(c) Name FIVE (5) guidelines for assigning network layer addresses (5 marks)

Question 6
(a) Design a network for a company that has 30 workstations and 2 servers with a leased line Internet connection. The design should include the network map, topology, transmission medium and connecting devices. (10 marks)
(b) Compare, bridges, switches and routers, also state in which layer of the OSI model do they operate in and state ONE (1) advantage of using a router. (10 marks)
(c) Define the following IEEE 802.3 Ethernet technologies:

(i) 10Base5
(ii) 10BaseF
(iii) 100BaseT4
(iv) 1000BaseCX
(v) 10GbE

(5 marks)