



UNIVERSITY OF COLOMBO
FACULTY OF GRADUATE STUDIES

POSTGRADUATE DIPLOMA IN INFORMATION SYSTEMS MANAGMENT –
2017/2018

Semester II Examination - 2018

PgDISM 507: Network Technologies and Administration
Three (03) Hours Only

Answer 05 questions only

Important Instructions to Candidates:

- If a page or a part of this question paper is not printed, please inform the supervisor immediately.
- Use the answer sheets provided.
- Write your index number on all pages of the answer script.
- Answer the questions in English.
- All questions are carrying equal marks.
- Explanation of your answer with illustrations where appropriate is encouraged.
- Clearly state any assumptions made.
- Marks will be awarded for the arguments supported by facts. Please answer to the point. More important are the content and arguments, not the length of the answers.
- Statements are given in the questions as opinions and may not be factually accurate.
- You are free to make reasonable assumptions, if all the details are not provided.
- Electronic devices capable of storing and retrieving text, including electronic dictionaries and mobile phones are not allowed.

(This question paper consists of 07 questions in 04 pages)

Question 1

- I. List different categories of computer networks (on the basis of scale) and distinguish one from the other.
[03 Marks]
- II. How do you account for higher reliability and scalability of a computer network?
[03 Marks]
- III. Why it is necessary to have layering in a network?
[03 Marks]
- IV. List the key benefits of layered network?
[03 Marks]
- V. List the seven layers of ISO's OSI model and briefly explain functionalities of different OSI layers
[08 Marks]

Question 2

- I. Two banks are planning to establish an electronic link between themselves, over which they can transmit money transfers. Can they use a virtual private network and a tunneling protocol, or is there better techniques available? Defend your answer?
[06 Marks]
- II. You are thinking about creating a network solution for a small business of approximately 10 users. You have assign each user a workstation and access to the Internet. Which Internet protocols will your network and workstations need to support? Which optional Internet protocols you might implement?
[06 Marks]
- III. A major university in Colombo used to place the computer output from student jobs on a table in the computer room. This room was the same computer room that housed all the campus Servers and supporting devices. Students would enter the room, pick up their jobs, and leave. What kinds of security problems might computer services encounter with a system like this?
[08 Marks]

Question 3

- I. State the Phases of Network Management. [04 Marks]
- II. Briefly explain network management models. [04 Marks]
- III. Explain Reactive Vs. Proactive Performance management. [06 Marks]
- IV. What are the 3 types of network monitoring tools? [06 Marks]

Question 4

An organization is granted a block of addresses with the beginning address 14.24.74.0/24. The organization needs to have 11 subnets as shown below:

- a. two subnets, each with 60 addresses
- b. two subnets, each with 28 addresses
- c. three subnets, each with 14 addresses
- d. four subnets, each with 2 addresses

Design the subnets and clearly mention the.

- Network address /subnet ID
- Broadcast address for the specified subnet
- Usable IP address range available for equipment

[20 Marks]

Question 5

- I. List down Wireless LAN Requirements? [05 Marks]
- II. In a wireless LAN world to deliver a message within a distribution system (DS), the distribution service needs to know where the destination station is located. Specifically, the DS needs to know the identity of the Access Point (AP) to which the message should be delivered in order for that message to reach the destination station. To meet this requirement, a station must maintain an association with the AP within its current basic service set (BSS). Briefly explain three services relate to this requirement? [05 Marks]
- III. What are the IEEE standard used in Wireless networking? [03 Marks]