



**NATIONAL SCHOOL OF BUSINESS MANAGEMENT**

**ONLINE EXAMINATION-2020 JUNE**

**BSc (Hons) Software Engineering/**

**BSc (Special) Management Information Systems – 16.2/17.1**

**4<sup>th</sup> Year 1<sup>st</sup> Semester Examination**

**14-June-2020**

**CN402.3 – Enterprise Networks**

**Instructions to Candidates**

- 1) **Answer only four (04) questions**
- 2) Time allocated for the examination is three and half ( $3\frac{1}{2}$ ) hours.
- 3) Total number of pages – four (4)
- 4) Use the provided answer booklet to write your answers and upload to the LMS as a PDF file within the stipulated time. This PDF file should be saved with your index no.
- 5) You are required to submit the answer file within the allowed timeframe, and no additional time is provided for submissions.
- 6) All the submissions will be checked for plagiarism. Plagiarism, collusion, and copying are serious offences in the university and serious penalties that would be imposed.
- 7) You're not allowed to publish or disseminate any part of the paper online or offline.

**Question 01 (5 marks each part)**

- a) Explain why structured approach is preferred for enterprise network designing process.
  - b) Why do we have to develop the logical models before the physical model in the traditional analytical model.
  - c) Discuss why operation suitability and Supportability is important requirements in enterprise network designing process.
  - d) Explain why we cannot build enterprise network using only one network topology only
  - e) Why do we prefer the hierarchical designing approach for network designing for a enterprise network?

## **Question 02(5 marks each)**

- a) What are the major concerns in providing connectivity in SAN/grids and clustered server environments?
  - b) Differentiate the functional difference of core and distribution layers in the layer 2 network designing ( cisco 3 layer design ).
  - c) Why do we have to segment the network to smaller blocks.
  - d) Explain the differences between broadcast domain and collision domain highlighting the methods to control traffic domains in a network.
  - e) Explain the difference between physical and logical segmentation of networks highlighting the advantages of logical segmentation.

### **Question 03(5 marks each)**

- a) Explain how we can use the frame tagging in the layer 2 to improve the network management and monitoring tasks .
  - b) Explain the difference between static and Dynamic VLAN implementations highlighting the practical usage of them (40 marks).
  - c) Discuss the factors you will consider in selecting multi -legged or simple firewall deployment model to secure a network.
  - d) Briefly explain the technologies which can be deployed to prevent data modification (maintain the Integrity) in an enterprise environment (30 marks)
  - e) Explain the difference of cryptography and steganography in brief (20 marks).

**Question 04(5 marks each)**

- a) Explain the difference between virus and trogons related to systems .
- b) Discuss the factors you will consider in selecting multi -legged or Sandwich firewall deployment model for a enterprise network.
- c) Why external media ( USB drives /flash drive /potable drives ) has become a major threats for enterprise networks Briefly explain the technologies which can be deployed to counter measure the above threat
- d) Explain the difference of cryptography and steganography in brief highlighting its practical usage
- e) Explain why we require comprehensive network management System (NMS) for enterprise environments.

**Question 05(5 marks each)**

- a) Why it's important to separate governance and management of ICT infrastructure. briefly explain highlighting the key component of each other (30 marks)
- b) Explain how the 7 enablers going to contribute to the success of ICT implementation as mentioned in the COBIT 5 governance model (20 marks).
- c) Explain the practical requirement to have both pooling and traps in SNMP network monitoring and Management.
- d) Explain why OSPF is preferred as a routing protocol in enterprise network environments.
- e) Differentiate the main working principles of connection oriented networks and connection less network giving practical requirements for each of them.

**Question 6**

If you have given the following IPv6 address block by ISP develop a IP address plan for the following given scenario fill the table

IPv6 block given from ISP:- 2401:dd05:128::/48.

The scenario

Local business having 5 district office and head office in Colombo is implementing IPv6 network connecting all the officers (5 numbers) to Colombo which has the central server room. The CCTV is only for internal use (no public routing) for each site. The Colombo head office provide BYOD environment for 50 of its staff.

The step of reaching the answer will carry 7 marks and each answer will carry respective marks indicate in the right hand column.

Subnet ID	Description	IPv6 block	Marks
01	HR division VLAN having 10 desktop and group printer	2401:dd05:128:1010::/64	(eg.)
02	Finance division VLAN having 12 desktop and 2 number of group printers		2
03	The server block in the DMZ hosting 12 servers including the company web all visible to public.		2
04	The Colombo office CCTV having 35 IP cameras and NVR to record them		3
05	The BYOD system at head office to support 50 staff with 100 plus devices		3
06	Head office VPN to support staff to login 50 concurrent users		3
07	Kandy branch staff desktops 100 units		2
08	Kandy branch CCTV system with 6 IP cameras and NVR		3

END OF THE PAPER