



SLIATE

SRI LANKA INSTITUTE OF ADVANCED TECHNOLOGICAL EDUCATION

(Established in the Ministry of Higher Education, vide in Act No. 29 of 1995)

Higher National Diploma in Information Technology
Second Year, Second Semester Examination – 2015
HNDIT2422 Network and Data Center Operations

Instructions for Candidates:
Answer only five (05) questions.
All questions carry equal marks.

No. of questions : 6
No. of pages : 3
Time : 3 hours

(01)

- I. Explain why Data Centers are important for business. (04 marks)
 - II. Give two examples for Data Centers. (04 marks)
 - III. Data centers are said to be “The Brain of Your Company”. List out four issues faced by Data Centers. (04 marks)
 - IV. Describe four critical services of Data Centers. (08 marks)
- (Total 20 marks)

(02)

- I. Briefly explain two categories of Data Centers. (04 marks)
 - II. Data center designers follow standards and regulations to build up the Data Centers. What are the purposes of following these standards and regulations? (04 marks)
 - III. Give an example for data center standards and regulations. (04 marks)
 - IV. Discuss in detail the four essential Data Center Design Strategies. (08 marks)
- (Total 20 marks)

(03)

- I. Compare and contrast Tier-1 and Tier-4 in Data Centers. (04 marks)
- II. Briefly explain the following layers and their functions. (06 marks)
 - a. Edge layer
 - b. Distribution layer
 - c. Core layer
- III. Some Data Centers guarantee five nines (99.999%) uptime for their service. Explain the meaning of five nines. (04 marks)
- IV. Data Centers are made of LAN (Local Area Network) and SAN (Storage Area Network) networks. How these two types of networks operate inside the Data Centers? (06 marks)

(Total 20 marks)

(04)

- I. What are the reasons for increasing heat loads in Data Centers? (04 marks)
- II. How can we use a cabinet arrangement in Hot aisle and Cold aisle to cool down the Data Centers? (06 marks)
- III. Briefly explain the steps of maintaining the airflow through the equipment racks inside the Data Centers. (06 marks)
- IV. Define the following Data Center cabling methods. (04 marks)
 - a. Underfloor
 - b. Overhead

(Total 20 marks)

(05)

- I. Explain briefly why power management is a critical function in Data Centers. (04 marks)
 - II. Briefly explain the following power measurements. (04 marks)
 - a. Watts per Square Foot
 - b. Watts per Cabinet
 - III. What is the purpose of Power Distribution Units (PDU) inside the Data Centers? (04 marks)
 - IV. Data Center designers plan to include 300 racks to a new Data Center. One rack supports up to 5KW. The total power consumption is 4 MW.
 - a. Calculate the power consumption used by the IT equipment. (04 marks)
 - b. Calculate the Power Utilization Effectiveness (PUE). (04 marks)
- (Total 20 marks)

(06)

- I. What is a Data Center cluster? (03 marks)
 - II. Describe load balancing in Data Center Cluster. (04 marks)
 - III. What is CMAN? (03 marks)
 - IV. What can cause a node to leave the cluster? (03 marks)
 - V. What is fencing? (04 marks)
 - VI. Briefly explain Server Virtualization. (03 marks)
- (Total 20 marks)