

Roll No: -----

**UNIVERSITY OF PETROLEUM
AND ENERGY STUDIES**



End Semester Examination, April 2017

Program/course: B. Tech. (CS+IFM)
Subject: Data Centre Transformation II
Code : CSIB 435
No. of page/s: 2

Semester – VIII
Max. Marks : 100
Duration : 3 Hrs

SECTION A

Attempt all questions

4*5=20

1. List out the benefits of liquid cooling in DC.
2. What do you understand by Datacenter Infrastructure Management?
3. What are the other power alternatives for Datacenter?
4. List out the key elements required for Data Centre.

SECTION B

Attempt all questions

4*10=40

5. How IT equipment cooling is done in Data Centre? Define with the help of example.
6. Define systematic approach to transform Datacenter into an Optimized and Energy Efficient Datacenter?
7. Explain the impact of virtualizing Data Centre on power utilization in detail.
8. Define following
 - A Liquid cooling at Rack level
 - B Liquid cooling at Server level.

SECTION C

Attempt all questions

2*20

CASE STUDY: IT departments are under more pressure than ever to deliver increasing value back to the business. In addition to responding to day-to-day operational challenges, IT is being asked to define an efficient path to new deployment paradigms, including server virtualization, cloud computing, and ultimately, a software-defined infrastructure. For IT decision-makers, the question becomes: How do you help lead your business forward? While there is no silver bullet for all the challenges IT faces today, spearheading IT modernization initiatives and replacing outdated data center technologies with the latest, cost-effective innovations, IT decision-makers can better meet business needs for greater performance, security, networking, storage, and

software efficiency advantages—all while lowering operating expenses. Optimizing the data center can also help IT be viewed as an enabling internal partner, moving the enterprise toward a highly efficient, software-defined infrastructure that enables the business to better use the latest technologies to take advantage of future opportunities. Many organizations consider the benefits of IT modernization through the lens of infrastructure modernization technology benefits, including better performance, efficiency, and security. This is a common and valid way to think about modernization. However, another way to look at modernization is to examine the financial aspects of a modernization effort and to seek answers to key questions:

9. Does it cost more to get these new capabilities? Can the business afford the incremental cost in a tight budgetary environment?
10. What is the short term / long term financial impact and ROI related to these efforts?

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SECTION A

Attempt all questions

4*5=20

1. List out the benefits of liquid cooling in DC.
2. Define different challenges of today's Data Centre.
3. What do you understand by Green Data Centre?
4. List out the key elements required for Data Centre.

SECTION B

Attempt all questions

4*10=40

5. How IT equipment cooling is done in Data Centre? Define with the help of example.
6. Define the Technologies for Effective and Efficient ways to setup Datacenter for Virtualized IT?
7. Explain the impact of virtualizing Data Centre on power utilization in detail.
8. List out the different attributes of a smart Data Centre Infrastructure.

SECTION C

Attempt all questions

2*20

CASE Study: Hurricane Sandy left roughly 90 percent of Long Island Power Authority's (LIPA's) 1.1 million customers without power. The recovery has been the slowest on Long Island. Many customers were without electricity for weeks after power was restored to most of New York City and other parts of the metropolitan area. As a result, customers, municipalities, and the business stakeholders demanded faster, more responsive engagement with accurate information. To better serve its customers, LIPA needed to develop a plan for a new storm process with a supporting power outage management system. At the heart of this effort was the transformation of the IT infrastructure. To implement the new process, the project team needed to upgrade dozens of interfaces from multiple generations of technology. Mainframe applications

were over 20 years old. Countless copies of data left users wondering what information was accurate. Hurricane Sandy revealed the weakness in this complexity. When the power went out, LIPA experienced significant issues delivering outage information due to middleware and interface performance and reliability during the stresses of the storm. Connecting hundreds of mismatched components and data models, not to mention licensing costs and unsupported software, was complicating architectures and support plans in the new data centers. LIPA needed to modernize its IT infrastructure and deliver a transformational storm process.

9. How the modernizing and restructuring the infrastructure with an enterprise approach can meet the business requirements?
10. How the Data Virtualization greatly reduced system complexity and improved performance and reliability?