

Roll No: -----



UNIVERSITY OF PETROLEUM AND ENERGY STUDIES

End Semester Examination, April 2018

Programme: B. Tech (CS+IFM)

Semester – VIII

Course Name: Data Centre Transformation II

Max. Marks : 100

Course Code: CSIB 435

Duration : 3 Hrs

No. of page/s: 2

(Section A: Attempt all questions)

1. Define different challenges of today's Data Centre. Justify the need of maintaining temperature and humidity in Data Centre **8 Marks**
2. Explain Air Containment strategies for Data Centre. List out the benefits of liquid cooling in DC. **8 Marks**
3. What are the other power alternatives for Datacenter? **7 Marks**
4. What do you understand by Datacenter Infrastructure Management? **7 Marks**

(Section B: Attempt all questions)

5. Define systematic approach to transform Datacenter into an Optimized and Energy Efficient Datacenter? **15 Marks**
6. List out the key elements required for Data Centre. What are the different ASHRAE Environmental guidelines for IT equipment? **15 Marks**
7. Define following **15 Marks**
 - A Liquid cooling at Rack level
 - B Liquid cooling at Server level.

(Section C: Attempt all questions)

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is no silver bullet for all the challenges IT faces today, spearheading IT modernization initiatives and replacing outdated data center technologies with the latest, cost-effective innovations, IT decision-makers can better meet business needs for greater performance, security,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:

8. Does it cost more to get these new capabilities? Can the business afford the incremental cost in a tight budgetary environment? **15 Marks**
9. What is the short term / long term financial impact and ROI related to these efforts? **10 Marks**

Roll No: -----



UNIVERSITY OF PETROLEUM AND ENERGY STUDIES

End Semester Examination, April 2018

Programme: B. Tech (CS+IFM)

Semester – VIII

Course Name: Data Centre Transformation II

Max. Marks : 100

Course Code: CSIB 435

Duration : 3 Hrs

No. of page/s: 1

(Section A: Attempt all questions)

1. Discuss and explain the Site infrastructure tier standards (topology) for DC. **8 Marks**
2. Review the detailed description of electrical infrastructure of DC with the help of diagram **8**

Marks

3. What do you understand by Datacenter Infrastructure Management? **7 Marks**
4. What are the other power alternatives for Datacenter? **7 Marks**

(Section B: Attempt all questions)

5. In context of Data Centre, explain the different type of transformation trends. **15 Marks**
6. Explain the following in context of cooling infrastructure: **15 Marks**
 - a. Basic of cooling infrastructure
 - b. Integrated server and storage virtualization
7. IT utility requires the understanding of following: **15 Marks**
 - a. New business model for IT compiler
 - b. Green Data Center
 - c. IT equipment in Data Centre

(Section C: Attempt all questions)

8. **25 Marks**
 - a. Define following
 - i. Liquid cooling at Rack level
 - ii. Liquid cooling at Server level
 - b. How IT equipment cooling is done in Data Centre? Define with the help of example