



Name:

Enrolment No:

**UNIVERSITY OF PETROLEUM AND ENERGY STUDIES**

**End Semester Examination, December 2022**

**Course: IT Applications in Energy Sector**

**Program: MBA Power Management**

**Course Code: DSIT 7003**

**Semester: I**

**Time : 03 hrs.**

**Max. Marks: 100**

**Instructions:**

**SECTION A**

**10Qx2M=20Marks (Answer All Question)**

S. No.		Marks	CO
Q 1	Complete Abbreviations: a. MDMS b. DERS	2	CO1
Q 2	Give 2 Examples of IT platform	2	CO1
Q 3	Give 2 Examples of OT platform	2	CO1
Q 4	What is Malware?	2	CO1
Q 5	Give examples of BOOT and BOO in Power Sector	2	CO1
Q 6	Name 2 Flow sensors	2	CO1
Q 7	What is Predictive Analytics?	2	CO1
Q 8	Give example of Pshing.	2	CO1
Q 9	Name 2 modules of SAP	2	CO1
Q 10	What is SAP?	2	CO1

**SECTION B**

**4Qx5M= 20 Marks**

Q 1	Name steps for Business Analytics.	5	CO2
Q 2	Draw Value chain of Solar Power Plant	5	CO2
Q 3	Briefly explain Financial accounting module of SAP architecture	5	CO2
Q 4	Explain GIS framework and where it is required in Power sector	5	CO2

**SECTION-C**

**3Qx10M=30 Marks**

Q 1	Analyze PPP contractual framework	10	CO3
Q 2	Analyze cyber security framework and how it can be enhanced	10	CO3
Q 3	Analyze significance of Digital transformation in Power Sector	10	CO3

**SECTION-D**

2Qx15M= 30 Marks

As the world goes through a vast energy transition, utilities stand in the center of attention, as governments, environmental organizations, and their customers continue to add pressure to meet ever-changing expectations. Customers expect their utilities to deliver an outstanding customer experience (CX) while resting assured that their information is being handled with the highest security standards. On top of these expectations, organizations are experiencing digital transformations that require them to think outside the box and plan their operation in the most efficient way. All these challenges represent a burden for service providers' IT infrastructure and often imply increasing processing and storage capacity to keep up with the demand. This strategy is not recommended due to the high costs involved in developing and maintaining a robust, scalable, and secure IT infrastructure.

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**Moving to cloud could result in USD\$70 to \$168 million in annual savings [1].**

Cloud computing under a SaaS model offers applications that can be accessed via a browser, which relieves organizations from duties such as software maintenance, infrastructure management, network security, and data availability. PaaS models provide access to a cloud-based environment in which users can build and deliver applications without the need of installing and maintaining complex desktop IDEs (Integrated Development Environments), which are usually very expensive. Finally, IaaS models offer computing capabilities (storage network, processing capacity, etc.) for a certain amount of time, when companies do not need to take care of the infrastructure.

With any of the options mentioned above, utilities can start moving towards digitalization, lowering the cost of ownership, and creating additional business cases in which customer experience (CX) levels are elevated. To keep up with their customers' demands, service

CO4

	<p>providers have added customer-facing features to their legacy systems, increasing operational complexity and harming CX.</p> <p>At the same time, organizations can easily transition to renewable energy, which has been promoted by many governments to achieve decarbonization in the energy sector. In fact, in the US, 78 % of investor-owned utilities have set targets in CO2 emission reductions and 40 % have net-zero or carbon-free electricity goals [2]. 92 % of power and utilities executives surveyed by Deloitte reported that their companies already had a plan or were developing a strategy to reduce reliance on fossil fuels [3]. Likewise, commercial and industrial corporations have started traveling the same path, which is putting more pressure on service providers to offer products and services that follow these goals and strategies.</p> <p>Nevertheless, service providers have been buying new solutions with narrow scopes that cover specific functionalities to face their challenges instead of optimizing their IT architecture. Therefore, many issues, including burdensome integration complexities, are hindering utilities' ability to grow continuously at the pace of the market.</p>		
Q1	Analyze the significance of Digital Transformation in Utility sector.	<b>15</b>	<b>CO4</b>
Q 2	From the case above what Indian Utilities can learn wrt Energy Transition?	<b>15</b>	<b>CO4</b>