Name:

Enrolment No:

School of Business
UPES
End Semester Examination December 2024

Program: MBA (PM) **Semester: 3rd**
Subject/Course: Energy Power Trading & Network Administration **Max. Marks: 100**
Course Code: PIPM 8013 **Duration: 3 Hrs**

IMPORTANT INSTRUCTIONS

1. **Any Calculator is Allowed**
2. **Any Communication Device is not Allowed**
3. **Smart Watches are not allowed**

SECTION A
10Qx2M=20Marks

S. No.		Marks	CO
Q1.	In accordance with the Electricity Act, 2003 define "Trading".	**2**	**CO1**
Q2.	Which of the following options is correct for Renewable Energy Certificates: a) Can be banked b) Can be bilaterally traded c) Repeated trade possible d)Valid of 1095 days after issuance	**2**	**CO2**
Q3.	What are the different types of Memberships offered by the Power Exchanges	**2**	**CO2**
Q4.	Write a short note on the evolution of the power market in India.	**2**	**CO1**
Q5.	If a consumer plans to purchase 300MW power for 20 days on an RTC basis, how much energy is being purchased?	**2**	**CO2**
Q6.	Under the provisions of the power market regulations, can 2 traders be a part of a single bilateral transaction? If yes, how will the trading margin be dealt with?	**2**	**CO2**
Q7.	What is the purpose of a Letter of Credit in a power purchase process?	**2**	**CO1**
Q8.	Briefly discuss the Day Ahead Contingency Application for open-access transactions.	**2**	**CO1**
Q9.	Term Ahead Market of the Power Exchange follows the procedure for Bilateral Transactions. (True/False)	**2**	**CO1**
Q10.	Can a Category I Trading Licensee Trade more than 10,000 Mus in a Financial Year? Discuss the provision as per the applicable Regulation.	**2**	**CO1**

SECTION B
4Qx5M= 20 Marks

<table>
<tr><td>Q11.</td><td>Discuss the Open Access Application Process under Advanced Reservation Application for Booking of Transmission Corridor as per the Procedure for Scheduling of Bilateral Transactions.</td><td>5</td><td>CO2</td></tr>
<tr><td>Q12.</td><td>Discuss the Advantages of Market Coupling in Power Exchange Operations.</td><td>5</td><td>CO3</td></tr>
<tr><td>Q13</td><td>Briefly discuss the responsibilities of a Load Dispatch Centre.</td><td>5</td><td>CO3</td></tr>
<tr><td>Q14</td><td>Discuss the Utility of Power Exchanges in India.</td><td>5</td><td>CO2</td></tr>
<tr><td colspan="4">SECTION-C
3Qx10M=30 Marks</td></tr>
<tr><td>Q15.</td><td>Utility A and Utility B entered into a banking agreement. Utility A agreed to bank the power as per the following details:
<table>
<tr><td>Period of Banking</td><td>Duration of Banking (Hrs)</td><td>Quantum (MW)</td></tr>
<tr><td>01.06.24 to 30.06.24</td><td>00.00 to 06.00, 10.00 to 13.00 and 22.00 to 24.00</td><td>150</td></tr>
<tr><td>01.07.24 to 31.07.24</td><td>00.00 to 05.00, 11.00 to 13.00 and 21.00 to 24.00</td><td>170</td></tr>
<tr><td>01.08.24 to 31.08.24</td><td>00.00 to 04.00, 10.00 to 13.00 and 22.00 to 24.00</td><td>210</td></tr>
<tr><td>01.09.24 to 30.09.24</td><td>00.00 to 24.00</td><td>240</td></tr>
</table>
The details for return are as under:
Period of Return: 01.04.25 to 31.08.24
Duration of Return: 00.00 to 18.00 and 23:00 to 24:00
Utility A has expressed its inability to offtake more than 130 MW power during any month of the return period and has agreed to accept 120% of the returnable power. It has further agreed that 120MW RTC Power will be offtaken during October 2024. Any short supply or extra supply will be settled at Rs. 3.10/kWh.

Calculate:
a) Volume of Power to be returned by Utility B at the start of the return period.
b) Settlement amount (if any)</td><td>10</td><td>CO3</td></tr>
</table>

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<tr>
<td>Q16.</td>
<td>M/s Tri Metal Smelters Ltd, located in Karnataka and connected at 132kV has the following power demand on a typical day:

00.00 to 08.00 Hrs: 16MW
08.00 to 18.00 Hrs: 32MW
18.00 to 24.00 Hrs: 24MW
The CPP Installed within the premises has a capacity of 30 MW and generation cost of Rs. 3.25/kWh.

MCP of Exchange is Rs. 3.00/kWh

Assuming that Tri Metal Smelters sells the CPP power on the exchange when the power is not being internally utilized,

Calculate

a) The Net Cash Inflow/Outflow towards ensuring power availability
b) The net income/expenditure from exchange transactions.

Applicable transmission charges and losses:

<table>
<tr><td>Region/State</td><td>Losses</td><td>Charges</td></tr>
<tr><td>Central Transmission System</td><td>1.30%</td><td>Rs. 0.10/kWh</td></tr>
<tr><td>Karnataka State</td><td>2.30%</td><td>Rs. 0.22/kWh</td></tr>
<tr><td>Karnataka Distribution</td><td>10%</td><td>Rs. 0.35/kWh</td></tr>
</table>
</td>
<td>10</td>
<td>CO4</td>
</tr>
<tr>
<td>Q17.</td>
<td>Discuss in detail the difference between a Case I and Case II bidding procedure.</td>
<td>10</td>
<td>CO3</td>
</tr>
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<td colspan="4">SECTION-D
1Qx30M= 30 Marks</td>
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<tr>
<td>Q18.</td>
<td>A & Co limited, a 30 MW Coal based generator located in Western Region connected to 220kV CTU substation has a total generation cost of Rs. 2.75/kWh.

B & Co limited, an industry located in Assam is willing to buy the power provided A & Co Ltd accepts to bear all the transmission charges and losses. Using the following variables, calculate the tariff at which the power could be offered.

Quantum of Power: 30 MW

Period of Power Supply: 1st August 2025 to 31st October 2025

Duration of Power Supply: 00.00 to 24.00 hrs

The generator has fixed his profit margin at Rs. 0.10/kWh</td>
<td>30</td>
<td>CO4</td>
</tr>
</table>

Following is the schedule Transmission Charges and Losses:

Trading Margin has been agreed upon over and above the power tariff.

State/Utility	Transmission Charges (Rs/MWh)	Transmission Losses (%)
Assam STU	35	2.30
Central System	43	1.75
Maharashtra STU	42	2.50

All other charges applicable as per regulations