**Name:**

**Enrolment No:**

UPES
UNIVERSITY WITH A PURPOSE

# UNIVERSITY OF PETROLEUM & ENERGY STUDIES

**End Semester Examination, June, 2021**

**Course: Energy Power Trading & Network Administration** | **Semester : IInd**
**Program: MBA (PM)** | **Time : 03 Hours**
**Code: PIPM7004** | **Max. Marks : 100**

***All questions shall be strictly answered in chronological order.***

<table>
<tr><td colspan="2"><u>SECTION A</u></td><td>[30 Marks]</td><td></td></tr>
<tr><td colspan="2"></td><td><u>Marks</u></td><td><u>CO</u></td></tr>
<tr><td>Q 1</td><td>Briefly discuss the REC Mechanism.</td><td>5</td><td>CO1</td></tr>
<tr><td>Q 2</td><td>Write a short note on the Power Generation in India.</td><td>5</td><td>CO2</td></tr>
<tr><td>Q 3</td><td>Discuss the various steps taken by the Government of India to encourage the generation and use of Renewable Energy.</td><td>5</td><td>CO2</td></tr>
<tr><td>Q 4</td><td>Briefly discuss the advantages of Point of Connection method over the Postal Stamp Method of Transmission Pricing.</td><td>5</td><td>CO1</td></tr>
<tr><td>Q 5</td><td>Write a short note on the role of a Power Trader in a Banking Transaction.</td><td>5</td><td>CO2</td></tr>
<tr><td>Q 6</td><td>In a certain condition, a Category I Trading Licensee has to maintain a net worth of Rs. 75 Crores. Briefly discuss the condition.</td><td>5</td><td>CO1</td></tr>
<tr><td colspan="2"><u>SECTION B</u></td><td>[50 marks]</td><td></td></tr>
<tr><td>Q 7</td><td>Discuss the advantages of Power Exchange over Bilateral Trading</td><td>10</td><td>CO3</td></tr>
<tr><td>Q 8</td><td>Write a note on the various categories of Trading Licensees as approved by the CERC. Your answer must be supported by the details of Trading License categories, Net Worth and Approved number of units to be traded.</td><td>10</td><td>CO4</td></tr>
<tr><td>Q9</td><td>Study the following data:
<table>
<tr><th>Year</th><th>Short Term Volume (BUs)</th><th>Generation Capacity (BUs)</th><th>Percentage</th></tr>
<tr><td>2009-10</td><td>65.9</td><td>805.25</td><td>8%</td></tr>
<tr><td>2010-11</td><td>81.56</td><td>852.35</td><td>10%</td></tr>
<tr><td>2011-12</td><td>94.51</td><td>927.75</td><td>10%</td></tr>
<tr><td>2012-13</td><td>98.94</td><td>969.29</td><td>10%</td></tr>
<tr><td>2013-14</td><td>106.64</td><td>1026.34</td><td>10%</td></tr>
<tr><td>2014-15</td><td>98.99</td><td>1110.07</td><td>9%</td></tr>
<tr><td>2015-16</td><td>115.23</td><td>1172.78</td><td>10%</td></tr>
<tr><td>2016-17</td><td>119.23</td><td>1241.7</td><td>10%</td></tr>
<tr><td>2017-18</td><td>127.62</td><td>1308.15</td><td>10%</td></tr>
<tr><td>2018-19</td><td>145.2</td><td>1375.86</td><td>11%</td></tr>
<tr><td>2019-20</td><td>137.16</td><td>1390.93</td><td>10%</td></tr>
</table></td><td>10</td><td>CO2</td></tr>
</table>

<table>
<tr><td></td><td>Provide any 5 valid comments on the data and link each comment with your real time observation of the power market.</td><td></td><td></td></tr>
<tr><td>Q 10</td><td>Power Distribution Utilities A & Co Ltd. and B & Co Ltd. engage in the banking of power.<br>A banked the energy with B & Co according to the following details:
<table>
<tr><td>Period of Supply</td><td>Duration of Supply</td><td>Quantum of Power</td></tr>
<tr><td>01.06.2021 – 30.06.2021</td><td>00:00 to 06:00, 12:00 to 14:00 and 22:00 to 24:00</td><td>200</td></tr>
<tr><td>01.07.2021 – 31.07.2021</td><td>00:00 to 08:00, 11:00 to 14:00 and 21:00 to 24:00</td><td>350</td></tr>
<tr><td>01.08.2021 – 31.08.2021</td><td>00:00 to 05:00, 13:00 to 14:00 and 20:00 to 24:00</td><td>250</td></tr>
</table>
B & Co agreed to return 90% of the banked energy and in case of return of less energy agreed to pay for the remaining energy @ Rs. 4.00/kWh<br>Following was the schedule of return:
<table>
<tr><td>Period of Supply</td><td>Duration of Supply</td><td>Quantum of Power</td></tr>
<tr><td>01.11.2021 – 30.11.2021</td><td>00:00 to 15:00 and 22:00 to 24:00</td><td>100</td></tr>
<tr><td>01.12.2021 – 31.12.2021</td><td>00:00 to 13:00, and 21:00 to 24:00</td><td>270</td></tr>
<tr><td>01.01.2022 – 31.01.2022</td><td>00:00 to 16:00 and 23:00 to 24:00</td><td>130</td></tr>
</table>
According to the terms and conditions agreed upon, calculate:<br>1. The total energy returnable by B & Co Ltd. to A & Co Ltd<br>2. The amount payable by B & Co Ltd. to A & Co Ltd<br>Support your answers with detailed calculations</td><td>10</td><td>CO3</td></tr>
<tr><td>Q 11</td><td>Write a note on the Advanced Reservation Application (ARA) process of booking transmission corridor for short term transactions as pert the Procedure for Scheduling of Bilateral Transactions</td><td>10</td><td>CO3</td></tr>
<tr><td colspan="2"><u>SECTION C</u></td><td colspan="2">[20 Marks]</td></tr>
</table>

<table>
<tr>
<td>Q 12</td>
<td>A power generator XYZ & Co Ltd is operating a 25MW coal based thermal power plant in the state of Maharashtra. The cost of generation is Rs. 2.20/kWh.<br>The generator is confused between selling the power through bilateral or exchange trade.<br>Assist the generator in the decision making and support your decision with detailed calculations.<br>Following are the details required to reach to an informed decision:<br>Prevailing MCP of the Exchange: Rs. 3.50/kWh<br>A discom located in West Bengal is willing to buy the power at a tariff of Rs. 3.71/kWh at the point of Entry into WB ISTS<br>The generator is connected to 132kV Maharashtra STU System and is willing to sell the power at a minimum profit margin of Rs. 0.25/kWh<br>In both the cases, power will be sold on RTC Basis (00:00 to 24:00 hours)<br>Following are the Transmission Charges and Losses applicable:
<table>
<tr><td>Utility</td><td>Transmission Charges (Rs/kWh)</td><td>Transmission Losses (%)</td></tr>
<tr><td>Maharashtra STU</td><td>Rs. 0.25/kWh</td><td>2.3%</td></tr>
<tr><td>Maharashtra Injection</td><td>Rs. 0.10/kWh</td><td>1.3%</td></tr>
<tr><td>West Bengal Withdrawal</td><td>Rs. 0.12/kWh</td><td>2.6%</td></tr>
<tr><td>West Bengal STU</td><td>Rs. 0.19/kWh</td><td>3%</td></tr>
</table>
</td>
<td>20</td>
<td>CO4</td>
</tr>
</table>