


<b>Name:</b>	 <b>UPES</b> <small>UNIVERSITY OF TOMORROW</small>
<b>Enrolment No:</b>	

**UPES**  
**End Semester Examination, December 2024**

<b>Course:</b> Power Generation and PSM	<b>Semester:</b> I
<b>Program:</b> MBA Power Management	<b>Time</b> : 03 hrs.
<b>Course Code:</b> PIPM 7001	<b>Max. Marks:</b> 100

**Instructions:**

**SECTION A**  
**10Qx2M=20Marks**

S. No.	Question	Marks	CO
Q 1	Complete the Abbreviations (Any two) a. UERC b. PGCIL c. THDC d. JERC	2	CO1
Q2.	Which are two states having highest Wind Power resources in India.	2	CO1
Q3	Name any 2 locations where Thermal UMPPs are in India	2	CO1
Q4	“Hydro Power Plants are called as multi-purpose projects” -Explain.	2	CO1
Q5	Name the country in Europe where predominant sources of energy are Hydro and Natural Gas	2	CO1
Q6	1 MWh is equal to how many Units of Electricity?	2	CO1
Q7	How much electricity will a wind power plant generate in a year with a capacity of 100 MW and CUF of 29%.	2	CO1
Q8	How much electricity will a Hydro Power Plant generate in 12 months, which will have capacity of 3 X 200 MW, PLF of 85% and PAF of 90%?	2	CO1
Q9	Which equipment in coal based thermal power plant helps remove ash?	2	CO1
Q10	What is the present solar power installed capacity?	2	CO1

**SECTION B**  
**4Qx5M= 20 Marks**

Q 11	How does a Solar Power plant works?	5	CO2
Q 12	Why we are unable to utilize the potential of getting energy from Urban waste?	5	CO2
Q 13	What do you mean by Sustainability and Sustainable Energy? Explain.	5	CO2

Q 14	Explain Waste to Energy process.	5	CO2
<b>SECTION-C</b> <b>3Qx10M=30 Marks</b>			
Q 15	How IT/OT applications are helping in increasing operational efficiency and reducing operating cost in Indian Power Sector.  OR  How can we achieve RE-RTC without disturbing our electricity market operation and maintaining price of electricity	10	CO3
Q 16	What are the steps Coal based power plant uses to reduce their coal consumption and maintain SHR in the process.	10	CO3
Q 17	Explain steps and plan to be undertaken to maintain optimum energy mix.  Or  Critically evaluate energy storage and benefits to India in achieving Energy security	10	CO3
<b>SECTION-D</b> <b>2Qx15M= 30 Marks</b> <b>Go through the case study below and answer the questions mentioned after the case study</b>			
<p>India's unconstrained renewable energy potential exceeds 24,000 GW, but scaling it beyond 1,500 GW will face considerable land, water, population and climate challenges, says a latest study by the Council on Energy Environment &amp; Water (CEEW).</p> <p>According to the study titled 'Unlocking India's RE and Green Hydrogen Potential: An Assessment of Land, Water, and Climate Nexus,' even reaching the over 7,000 GW required to achieve net-zero emissions by 2070 will require "addressing challenges such as land access, climate risks, land conflicts, and population density".</p> <p>India currently has an installed RE capacity of 150 GW, and up to 1,500 GW, the constraints are relatively manageable, says the report. But deployment beyond 1,500 GW could face critical challenges as multiple constraints intensify. The study predicted that green hydrogen production could reach 40 MTPA by 2050, at a cost lower than \$3.5/kg, but water management is critical.</p> <p>The study threw up new renewable energy hot spots with Odisha and Madhya Pradesh emerging as new potentials. According to the study, Tamil Nadu has a significantly lower cost of generation than other states due to a high wind PLF, with a potential of 50 GW at an LCOE lower than Rs 2.65 per kWh.</p> <p>Large solar potential exists in Rajasthan (6464 GW), Madhya Pradesh (2978 GW), and Maharashtra (2409 GW) at LCOEs lower than Rs 2.8 kwh.</p> <p>The study said India's biggest limiting factor is population density with only 29% of onshore wind potential and 27% of solar potential located in areas with a population density lower than 250 people/sq km. Land conflicts further restrict deployment, with only about 35% of onshore wind potential and 41% of solar potential located in areas free from historical land conflicts.</p>			
Q18	What are the risks involved?	10	CO4
Q19	What steps can we undertake to resolve the risks?	20	CO4