Name:

Enrolment No:

UNIVERSITY OF PETROLEUM AND ENERGY STUDIES
End Semester Examination, December 2022

Course: Power Sector Structure & Functioning **Semester: Ist**
Program: MBA Power Management **Time : 03 hrs.**
Course Code: PIPM7002 **Max. Marks: 100**
Set -2
Instructions:

SECTION A
10Qx2M=20Marks (Answer All Question)

S. No.		Marks	CO
Q 1	What is Secondary Energy?	**2**	**CO1**
Q 2	Name Chairman of CERC & CEA.	**2**	**CO1**
Q 3	What is the full form UNFCCC & COP?	**2**	**CO1**
Q 4	What is current installed generation capacity in India? How much units India has approx. generate in the financial year of 2021-22.	**2**	**CO1**
Q 5	What is the Green Energy? Explain	**2**	**CO1**
Q 6	What is Open Access as per the Electricity Act 2003? Explain.	**2**	**CO1**
Q 7	What is CUF, PAF & PLF?	**2**	**CO1**
Q 8	Electricity Act 2003 is not applicable in ----------. (Fill up blank.)	**2**	**CO1**
Q 9	Electricity Act 2003 has -----Parts and -------Sections. (Fill up blank.)	**2**	**CO1**
Q 10	Expand GCV, IPP, ARR and SHR.	**2**	**CO1**

SECTION B
4Qx5M= 20 Marks

Q 1	What are salient feature of the Electricity Act 2003? Explain.	**5**	**CO2**
Q 2	Analyse "World-Bank Model" for power reform in the developing country after explaining it.	**5**	**CO2**
Q 3	Explain salient points of proposed National Electricity Policy or National Tariff Policy.	**5**	**CO2**
Q 4	Explain growth and development of power sector in India since independence. **OR** Why Solar Energy Price is coming down in India? Give major reasons.	**5**	**CO2**

SECTION-C
3Qx10M=30 Marks

Q 1	Differentiate among Grey Hydrogen, Blue Hydrogen and Green Hydrogen. Critically analyze Green Hydrogen Policy/Mission in India. **OR** Calculate first year Tariff of 500 MW Hydro-Power Plant in India assuming CERC norms and regulations.	**10**	**CO3**
Q 2	"Renewable and Alternative Energy with Storage is going to change Energy & Transportation in the coming decades" – Critically evaluate this statement with your suggestions for better energy transition.	**10**	**CO3**
Q 3	Power Sector in India is moving from monopoly to competition – Evaluate this statement with at least three examples and your suggestions.	**10**	**CO3**
	SECTION-D **2Qx15M= 30 Marks**		
	Short-term interventions addressing the current energy crisis must be accompanied by a steadfast focus on mid- and long-term goals of the energy transition. High fossil fuel prices, energy security concerns and the urgency of climate change underscore the pressing need to move faster to a clean energy system, says *World Energy Transitions Outlook 2022*. Launched by the International Renewable Energy Agency (IRENA) at the Berlin Energy Transition Dialogue today, the Agency's Outlook sets out priority areas and actions based on available technologies that must be realized by 2030 to achieve net zero emissions by mid-century. It also takes stock of progress across all energy uses to date, clearly showing the inadequate pace and scale of the renewables-based transition. "The energy transition is far from being on track and anything short of radical action in the coming years will diminish, even eliminate chances to meet our climate goals", said Francesco La Camera, Director-General of IRENA. "Today, governments are facing multiple challenges of energy security, economic recovery and the affordability of energy bills for households and businesses. Many answers lie in the accelerated transition. But it's a political choice to put policies in place that comply with Paris Agreement and the Sustainable Development Agenda. Investing in new fossil fuel infrastructure will only lock-in uneconomic practices, perpetuate existing risks and increase the threats of climate change." "It is high time to act", La Camera added. "Recent developments have clearly demonstrated that high fossil fuel prices can result in energy poverty and loss of industrial competitiveness. 80% of the global population lives in countries that are net-importers of fossil fuels. By		**CO4**

	contrast, renewables are available in all countries, offering a way out of import dependency and allowing countries to decouple economies from the costs of fossil fuels while driving economic growth and new jobs." The Outlook sees investment needs of USD 5.7 trillion per year until 2030 including the imperative to redirect USD 0.7 trillion annually away from fossil fuels to avoid stranded assets. But investing in the transition would bring concrete socioeconomic and welfare benefits, adding 85 million jobs worldwide in renewables and other transition-related technologies between today and 2030. These job gains would largely surpass losses of 12 million jobs in fossil fuel industries. Overall, more countries would experience greater benefits on the energy transition path than under business as usual, according to the Outlook. Renewables would have to scale-up massively across all sectors from 14% of total energy today to around 40% in 2030. Global annual additions of renewable power would triple by 2030 as recommended by the Intergovernmental Panel on Climate Change (IPCC). At the same time, coal power would have to resolutely be replaced, fossil fuel assets phased out and infrastructure upgraded. The Outlook sees electrification and efficiency as key drivers of the energy transition, enabled by renewables, hydrogen, and sustainable biomass. End-use decarburization will take center-stage with many solutions available through electrification, green hydrogen, and the direct use of renewables. Notably electro mobility is seen as driver of energy transition progress, growing the sales of electric vehicles (EV) to a global EV fleet twenty times bigger than today. However, a comprehensive set of cross-cutting, structural policies covering all technological avenues and just transition objectives is needed to achieve the necessary deployment levels by 2030. Increasing ambition in the National Determined Contributions (NDCs) and national energy plans under the Glasgow Climate Pact must provide certainty and guide investment strategies in line with 1.5°C. Particularly the world's largest energy consumers and carbon emitters from the G20 and G7 must show leadership and implement ambitious plans and investments domestically and abroad. They would need to support the global supply of 65% renewables in power generation by 2030. Climate		

	finance, knowledge transfer and assistance would have to increase for an inclusive and equal world. Finally, enabling a rapid transition that complies with climate and development goals requires political commitment to support the highest level of international cooperation. Achieving Sustainable Development Goals and universal access to modern energy by 2030 must remain a vital pillar of a just and inclusive energy transition. A holistic global policy framework can bring countries together to enable international flow of finance, capacity and technologies. Short-term interventions addressing the current energy crisis must be accompanied by a steadfast focus on mid- and long-term goals of the energy transition. High fossil fuel prices, energy security concerns and the urgency of climate change underscore the pressing need to move faster to a clean energy system, says *World Energy Transitions Outlook 2022*. Launched by the International Renewable Energy Agency (IRENA) at the Berlin Energy Transition Dialogue today, the Agency's Outlook sets out priority areas and actions based on available technologies that must be realized by 2030 to achieve net zero emissions by mid-century. It also takes stock of progress across all energy uses to date, clearly showing the inadequate pace and scale of the renewables-based transition. "The energy transition is far from being on track and anything short of radical action in the coming years will diminish, even eliminate chances to meet our climate goals", said Francesco La Camera, Director-General of IRENA. "Today, governments are facing multiple challenges of energy security, economic recovery and the affordability of energy bills for households and businesses. Many answers lie in the accelerated transition. But it's a political choice to put policies in place that comply with Paris Agreement and the Sustainable Development Agenda. Investing in new fossil fuel infrastructure will only lock-in uneconomic practices, perpetuate existing risks and increase the threats of climate change." "It is high time to act", La Camera added. "Recent developments have clearly demonstrated that high fossil fuel prices can result in energy poverty and loss of industrial competitiveness. 80% of the global population lives in countries that are net-importers of fossil fuels. By contrast, renewables are available in all countries, offering a way out of		

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Q1	Analyze the challenges in getting investment for any projects of Energy transition projects.	**15**	**CO4**
Q 2	Elaborate the steps any Government can take in promoting Energy Transition	**15**	**CO4**