Name: **Enrolment No:**	UPES UNIVERSITY WITH A PURPOSE

UNIVERSITY OF PETROLEUM AND ENERGY STUDIES
End Semester Examination, December 2020

Program: MBA Power Management (B1 & B2) **Semester – 3rd**
Subject (Course): Power Pricing & PPA **Max. Marks: 100**
Course Code :PIPM-8003 **Duration: 3 hrs**
No. of page/s: 3

SECTION A

1. Each Question will carry 5 Marks
2. Attempt all Questions

		Marks	CO
Q 1	Complete the Abbreviations i. CUF ii. PLF iii. PAF iv. ROE v. FSA	**5**	**CO1**
Q2	What is PPA? Why we do not call it as Power Sale Agreement or Power Sales & Purchase Agreement?	**5**	**CO2**
Q3	Explain "Discounting Factor" and "Discounting Rate".	**5**	**CO1**
Q4	Name the major components or factors of capacity charge for TPP. (No need to explain each factor)	**5**	**CO2**
Q5	What is "Station Heat Rate"? Explain.	**5**	**CO1**
Q6	What is Force Majeure? Explain.	**5**	**CO1**

SECTION B

1. Each question will carry 10 marks
2. Instruction: Write short / brief notes

Q7	Why tariff from "Solar Power Plant" has come down from past in India? Explain.	**10**	**CO2**
Q8	Analyze and evaluate proposed bifurcation of DISCOMS into "Content & Carries" and reasons behind this.	**10**	**CO4**
Q9	Give main points of model PPA between a TPP (CGS like NTPC) and State Distribution Utility (like UPCL or UPPCL) in general.	**10**	**CO2**

Q10	Analyze Single buyer Model, Wholesale Buyer Model and Retail Model with suitable diagram.	**10**	**CO3**
Q11	Apply the knowledge of power management and predict what sort of Electricity policy change we can expect in India. Explain any one predictive change.	**10**	**CO3**

SECTION-C

20 **CO4**

Case -Study

Electricity explained: Factors affecting electricity prices

Many factors influence electricity prices

Electricity prices generally reflect the cost to build, finance, maintain, and operate power plants and the electricity *grid* (the complex system of power transmission and distribution lines). Some for-profit utilities also include a financial return for owners and shareholders in their electricity prices.

Several key factors influence the price of electricity:

- **Fuels**: Fuel prices, especially for natural gas and petroleum fuels (mainly in Hawaii and villages in Alaska), may increase during periods of high electricity demand and when there are fuel supply constraints or disruptions because of extreme weather events and accidental damage to transportation and delivery infrastructure. Higher fuel prices, in turn, may result in higher costs to generate electricity.
- **Power plant costs**: Each power plant has financing
- =, construction, maintenance, and operating costs.
- **Transmission and distribution system**: The electricity transmission and distribution systems that connect power plants with consumers have construction, operation, and maintenance costs, which include repairing damage to the systems from accidents or extreme weather events and improving cybersecurity.
- **Weather conditions**: Extreme temperatures can increase demand for heating and cooling, and the resulting increases in electricity demand can push up fuel and electricity prices. Rain and snow provide water for low-cost hydropower generation and wind can provide low-cost electricity generation when wind speeds are favorable. However, when there are droughts or competing demand for water resources, or when wind speeds drop, the loss of electricity generation from those sources can put upward pressure on other energy/fuel source and prices.
- **Regulations**: In some states, public service/utility commissions fully regulate prices, while other states have a combination of unregulated prices (for generators) and regulated prices (for transmission and distribution).

Electricity prices are usually highest in the summer

The cost to supply electricity changes minute by minute. However, most consumers pay rates based on the seasonal cost of electricity. Changes in prices generally reflect variations in electricity demand, availability of generation sources, fuel costs, and power plant availability. Prices are usually highest in the summer when total demand is high because more expensive generation sources are added to meet the increased demand.

Electricity prices vary by type of customer

Electricity prices are usually highest for residential and commercial consumers because it costs more to distribute electricity to them. Industrial consumers use more electricity and can receive it at higher voltages, so supplying electricity to these customers is more efficient and less expensive. The price of electricity to industrial customers is generally close to the wholesale price of electricity. In 2019, the U.S. annual average retail price of electricity was about 10.60¢ per kilowatthour (kWh).

Electricity prices vary by locality

Prices vary by locality based on the availability of power plants and fuels, local fuel costs, and pricing regulations. In 2019, annual average electricity prices ranged from about 28.33¢ per kWh in Hawaii to about 7.65¢ per kWh in Louisiana. Prices in Hawaii are high relative to other states mainly because the majority of its electricity is generated with petroleum fuels.

Q 12. Analyze given case with your critical review and suggestions if any. (20 Marks - CO 4)
