

<b>Name:</b>	 <b>UPES</b> UNIVERSITY WITH A PURPOSE
<b>Enrolment No:</b>	

**UNIVERSITY OF PETROLEUM AND ENERGY STUDIES**  
**End Semester Examination, December 2019**

**Course: Power Economics**

**Program: MBA - PM**

**Course code: ECON 7008**

**Semester: I**

**Time: 03 Hours**

**Max. Marks: 100**

**Instructions: Answer all the questions in group A, B and D. Answer any two questions from group C.**

**SECTION A**

**2X 10 = 20 Marks**

Q1.	What are the steps of Capital Budgeting?	<b>CO1</b>
Q2	Why NPV and IRR sometimes select two different projects.	<b>CO2</b>
Q3	Mention two disadvantages of NPV	<b>CO1</b>
Q4	Mention two important tariff determination techniques	<b>CO1</b>
Q5	Mention the variable cost components of tariff	<b>CO1</b>
Q6	What are the problems of demand forecasting for the discoms?	<b>CO2</b>
Q7	What are the two project category in type-I small scale – CDM Projects	<b>CO1</b>
Q8	What are the reasons of Debundling?	<b>CO2</b>
Q9	Define GDP- Energy elasticity	<b>CO1</b>
Q10	The price elasticity of demand of a good is 1.25. What type of elasticity is it?	<b>CO2</b>

**SECTION B**

**5 X 4 = 20 Marks**

Q1	Discuss the general goals of power sector reforms.	<b>CO2</b>
Q2	Calculate and interpret the NPV and IRR based on following Operating Cash Flow  1st year Rs. 5, 50,000 2nd year Rs. 7, 00,000 3rd Year Rs. 4, 00, 000 Discounting Factor 20 % and 22%	<b>CO1</b>
Q3	Elaborate the changing market structure of power sector after Electricity Act 2003.	<b>CO3</b>
Q4	Mention reasons why regulatory framework is needed?	<b>CO2</b>

**SECTION-C**

**15 X 2 = 30 Marks**

Q1	Discuss the reasons for introduction of Real Time Market (RTM) for Electricity in India	CO4
Q2	Discuss the price output under monopoly market. Is monopoly prevails in the power sector?	CO2
Q3	Analyze the factors that affect the macro economic environment	CO3

**SECTION-D**

**1 X 30 = 30 Marks**

	<p>Indian economy has reached US\$ 2.7 trillion at present. In the interim Budget of 2019-20 presented in February 2019, the Government gave a Vision for the Decade and flagged there are ten important aspects of their Vision laid before us. The most important aspect was building physical and social infrastructure. The new target set in the full Union Budget by finance minister Nirmala Sitharaman, to reach the US\$ 5 trillion in the next few years. Thus maintaining the same tempo, Union Budget 2019 further emphasised infrastructure sector. Big bang reform proposed for the power sector are government promised to build on the successful model in ensuring power connectivity – One Nation, One Grid – that will ensure power availability to states at affordable rates. Measures like one nation-one grid and creating green infrastructure along with affordable housing can transform lives. Finance minister said the much needed power reforms such as the power tariff reform should be soon taken up. A discussion paper on ‘Re-Designing the Real-Time Electricity Markets (RTM) in India’ as was proposed by Central Electricity Regulatory Commission (CERC) and invited comments/suggestions. In response to the new proposal 21 stakeholders including POSOCO, Power Exchanges, Trading Licenses, IPPs, State Utilities, State LDCs, Generators and Consultancies submitted their comments. The proposed Real Time Market (RTM) would not only provide discoms an alternate mechanism to access larger market at competitive price but would also allow the generators to participate in the RTM with their un-requisitioned capacity. This will definitely ensure procurement of electricity by the masses at an affordable tariff. As a step towards creating a Market Platform for trade of energy closer to the delivery of power in real time, a framework for Real-Time Market for electricity is already proposed</p>	
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and a public notice (No. RA-14026(11)/2/2018/CERC) issued by CERC on 6<sup>th</sup> August 2019 to finalise formation of the real time market.

The recommendations of the High Level Empowered Committee (HLEC) on retirement of old & inefficient plants, and addressing low utilisation of Gas plant capacity due to paucity of Natural Gas, will also be taken up for implementation now.

Sitharaman said the government is examining performance of the Ujwal Discom Assurance Yojana (Uday) and it will be improved. The Government launched Ujjwal DISCOM Assurance Yojana (UDAY) in 2015 aimed at financial and operational turnaround of DISCOMs. Government is examining the performance of the Scheme and it will be further improved. Uday has faced criticism owing to rising debt and overdues of discoms. The gap between average cost of supply and revenue recovery reduced from 59 paise at the beginning of Uday to 17 paise in FY18. However, the revenue gap widened in nine months of FY19 to 35 paise, from 26 paise in the year ago period, on higher coal and freight charges, lesser subsidy disbursement by states and ineffective tariff hikes by regulators. It may be mentioned that DISCOM's are now beset with huge debt burden at present an amount of Rs. 72,862 crores and Power ministry very recently has proposed special credit scheme for DISCOM's to pay back debt burden to generators on easy terms. Central government will work with the State Governments to remove barriers like cross subsidy surcharges, undesirable duties on open access sales or captive generation for Industrial and other bulk power consumers. Besides these structural reforms, considerable reforms are needed in tariff policy. A package of power sector tariff and structural reforms would soon be announced.

Large public infrastructure can be built on land parcels held by Central Ministries and Central Public Sector Enterprises all across the country.

Through innovative instruments such as joint development and concession, public infrastructure will be taken up.

Key difference between an integrated market and an exchange-based market is in terms of how the unit commitment and dispatch processes take place and the extent to which the decisions are centrally coordinated. Both the integrated markets and exchange-based markets rely on day-ahead and real-time markets. The day-ahead market typically clears at about midday on the day before the operating day in question. In both these markets market players use forecasts of demand and supply conditions on the operating day to provide market participants with day-ahead schedules and corresponding prices. Continuous trading implements a pay-as-bid matching algorithm. In uniform pricing as followed in the integrated markets of US, auction participants receive the market-clearing price so that the optimal strategy in competitive environments is to bid at marginal cost. In comparison, the pay-as-bid scheme used for continuous trading implies that market participants have to anticipate the clearing price and accordingly mark up their bids.

India has unique characteristics of variation in demand pattern in different region due to its climatic and socio-cultural diversity. E.g. when the maximum demand met in Northern region (July to August) coincides with minimum demand met in Western Region and vice versa. This diversity in the demand pattern can be utilised effectively with national level organised market given the fact that electricity is more difficult and expensive to store. With National level organised market, possibility of resource optimization across regions to take advantage of cheap resources would increase significantly thereby benefiting masses.

	<p>Given the constraints in existing market operation and system operation and the challenges facing energy imbalance in real time, it is high time the country brought about changes in the market design in the real time segment. Subba Rao Amarthaluru, Executive Director-Finance &amp; Strategy at CLP India, said, “The announcement of pursuing a ‘One Nation One Grid’ concept is a positive move and will prove beneficial in achieving the government’s goal of power for all by 2020. Government’s move to focus of driving structural reforms in the power sector is commendable, and will definitely help in propelling the sector towards the path of growth. This will fuel investments and address the issues concerning stressed power plants.” Thus the solution to the existing problems of power sector lies in the way forward of a <u>competitive market model for power sector via the Real Time Market.</u></p>	
Q1.	In the light of the above case let, analyse the current problems of India power sector and suggest solutions for these problems.	<b>CO4</b>