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

Program: BALLB Energy Law (B1 & B2)   Semester –   V
Subject (Course): Economics of Power Sector   Max. Marks: 100
Course Code   : CLNL3007   Duration: 3 hrs
No. of page/s: 3

SECTION A

		Marks	CO

Q 1	Complete the Abbreviations
	    i. JERC
	    ii. CUF
	    iii. PGCIL
	    iv. MR
	    v. CERC
	    vi. DSM
	    vii. PAF
	    viii. UERC
	    ix. UJVNL
	    x. AVC
		5	CO1

Q2	Write short notes (Not more than 10 lines) (Attempt any five)
	
	    i. RLDC
	    ii. Oligopoly
	    iii. Monopoly
	    iv. Peak Clipping
	    v. Normal Profit (also draw graph)
	    vi. Single Buyer Model
	    vii. Retail Market
		15	CO1

SECTION B (Attempt any 2 Questions)			
Q1	Draw Value chain and block diagram of a Wind power station.	10	CO2
Q2	Draw Value chain and block diagram of a Hydro power station.	10	CO2

Q3	Explain Life cycle cost model and draw a graphical representation of the model of a Hydro Power station.	10	CO2

Q4

Find the simple linear equation with the following data for the state of Uttarakhand. Demand is the dependent variable and temperature is the independent variable.

	April 2017	May 2017	June 2017	July 2017	Aug 2017	Sep 2017	Octo ber 2017	Nov 2017	Dec 2017	Jan 2018	Feb 2018	Mar ch 2018
UK Dema nd (MW)	2001	1992	2010	1975	1987	2055	1932	1886	2030	2150	2140	1886
Temp.	34	35	32	32	32	30	29	25	21	19	20	22

10   CO1

Q5

Find out the ATC, MC and AVC from the below mentioned data. Also draw a graph showing AFC, AVC, ATC and MC

Quantity	Fixed Cost	Variable Cost	Total Cost
0	5	0.00	0
1	5	0.40	5.4
2	5	0.90	5.9
3	5	1.30	6.3
4	5	2.50	7.5
5	5	3.50	8.5
6	5	4.80	9.8
7	5	6.30	11.30
8	5	7.00	12
9	5	8.90	13.90
10	5	11.00	16

10   CO3

	SECTION-C (Attempt any 2 Questions)		
Q 1	Explain the role of Generators both Captive and IPP type is as mentioned in Electricity Act 2003.	15	CO2,CO3
Q2	Explain Electricity Legislation History of India.	15	CO1,CO3
Q3	Explain DSM. How government is intervening in achieving DSM?	15	CO2,CO4

	SECTION-D		

Q 1.   Calculate electricity tariff of Solar Power Plant with the following data.

	Particulars	Normative Parameters		
1	Capacity of Plant	500		
2	Capital Cost	Rs. 8.3 Cr/ MW		
3	Debt: Equity Ratio	70:30		
4	Return on Equity	21%		
5	Interest on Loan	8%		
6	Working Capital	10% of Total Capital	30	CO2,CO3,CO4
7	Interest on working Capital	12%		
8	Depreciation Rate	5.28%*		
9	Operation and Maintenance cost	10 Lakhs/MW*		
10	Plant Load Factor (PLF)	30%		
11	Plant Availability Factor	40%		
12	Auxiliary Power Consumption	1.50%		
13	Plant Life (For thermal plant based on Coal)	20		