Name:

Enrolment No:

UNIVERSITY OF PETROLEUM AND ENERGY STUDIES

End Semester Examination, December 2019

Programme Name: B.Tech EL & PSE **Semester : VII**

Course Name : Demand Side Management **Time : 03 hrs**

Course Code : ELEG 4007 **Max. Marks : 100**

Nos. of page(s) : 02

Instructions : Attempt all questions from Section (A) and any four from Section (B), any two from (C).

SECTION A

S. No.		Marks	CO
Q 1	Define the term "Ancillary Services" with example.	5	CO5
Q 2	"Wheeling is important to independent energy producers". Give your suggestion.	5	CO1,2
Q 3	Describe the term Captive power and captive power policy.	5	CO2,4
Q 4	Brief the Role of BEE and ISO in power industry.	5	CO3

SECTION B

Q 5	Explain the role and responsibility of the following bodies for power dispatch (a) LDC's (b) NLDC (c) RLDC (d) SEBs	10	CO3,4
Q 6	(a) Discuss the strategies used in Demand side management. (b) The full load capacities of two generating stations A and B are 500 MW and 210 MW respectively. The interconnector connecting the two stations has an induction motor (Plant C) of full load capacity 50 MW. Percentage changes of speeds of A,B and C are 5,4 and 2.5 % respectively. The loads on bus bars A and B are 250MW and 100 MW respectively. Determine the load taken by Plant C and also indicate the direction in which the energy is flowing.	10	CO1,2
Q 7	The cost curve of two generating units can be approximated by second order polynomials as under: $C_1 = 0.015\ P_1^2 + 16\ P_1 + 50$ Rs./ hr $C_2 = 0.025\ P_2^2 + 12\ P_2 + 30$ Rs./ hr a) Find the economic generation of each generator for a total load of 150 MW. The minimum and maximum loads of the units are 20 and 100 MW. b) Find the cost per hr if the generators are operated as per above schedule.	10	CO3,4

Q 8	Define the term regulation and deregulation. Draw and explain the structure of deregulated industry.	**10**	**CO3,4**
Q 9	Describe the various utility driven measures to incentivize DSM.	**10**	**CO5**
	SECTION-C		
Q 10	a) Discuss briefly the problems associated with VAR transmission. b) Derive the equation for economic scheduling by neglecting of transmission losses	**10+10**	**CO5**
Q 11	a) Describe the term Open Access of the Section 2(47) and Open Access Registry. b) Explain the steps involved in Energy Auction and competitive bidding.	**8+12**	**CO4,5**
Q 12	(a) Explain the operation of tap changing transformer and shows the variation of the turn ration changes the voltage level. (b) A 230 kV line is fed through 33/230kV transformer from a constant 33 kV supply. The impedance of the line and transformers at 230 kV is (30+j80) ohms. Both the transformers are equipped with tap changing facilities, which are so arranged that the product of the two off nominal settings is unity. If the load on the system is 150 MW at 0.9 p.f. , determine the settings of the tap changers required to maintain the voltage of the load bus bar at 33 kV.	**20**	**CO1,2**