UNIVERSITY OF PETROLEUM & ENERGY STUDIES

DEHRADUN

End Semester Examination –May, 2018

Name of the Program: MA Economics- (specialization in Energy Economics)
Semester – II
Subject Name : Energy Pricing **Max. Marks : 100**
Subject Code : ECON 7013 **Duration : 3 hrs**
This question paper has 03 page(s).

Section – A (2*10 =20 Marks)

1. Answer the following questions:

    a) "Readiness to Serve" Concept
    b) Definition of demand charge and commodity charge
    c) Define the term Rate
    d) Difference between Price & Tariff and its implications
    e) Dependable energy capacity factor
    f) RE Curtailment
    g) Option demand
    h) Difference between rate of use and extent of use
    i) Frozen rates
    j) Coincidence demand and non-coincidence demand

Section - B (08*5=40 Marks)

Answer Any Five Questions.

2. Explain the Readiness to serve concept and Use of service concept help of an example.
3. Discuss Utility cost allocation theory and its significance.
4. Value approach to pricing is also called accommodation of prices to demand. Explain
5. What is Upper and lower limit of rates concept in energy pricing.
6. Suggest the procedure for planning for energy demand.
7. Share your understanding on the use of Fish-hook Blocking concept for rate making purposes.
8. Explain the concept of Diversity Factor with the help of diagrams given below:

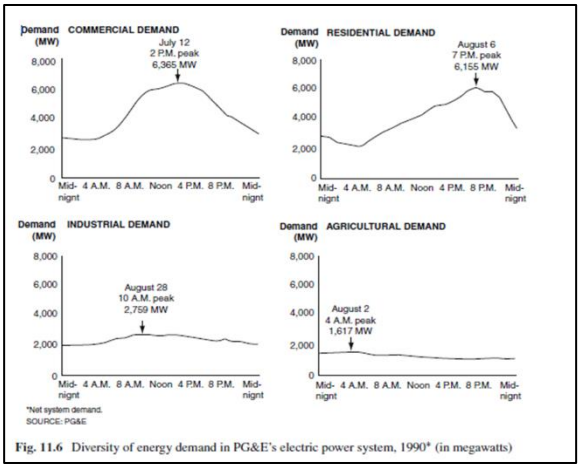
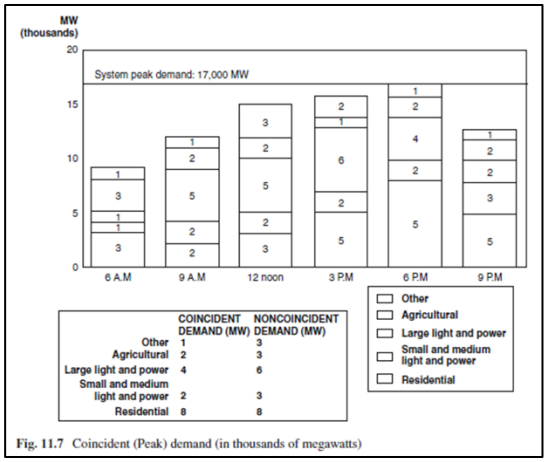


Fig. 11.6 Diversity of energy demand in PG&E's electric power system, 1990* (in megawatts)



	COINCIDENT DEMAND (MW)	NONCOINCIDENT DEMAND (MW)
Other	1	3
Agricultural	2	3
Large light and power	4	6
Small and medium light and power	2	3
Residential	8	8

Fig. 11.7 Coincident (Peak) demand (in thousands of megawatts)

Section - C (2*10=20 marks)

Attempt Any Two Questions:

9. "The cost of non-conventional electric generation are virtually unknown when is considered as a primary reliable source for base-load power. Wind, solar and cogeneration exist, but are still to be tested in the context of main-line electric support system." Analyse the given statement with Cost approach to pricing perspective.

10. You are the manager of a large manufacturing plant located on the plains of Kansas and you have just been informed that your company is being sued for selling one its several products (product A) below cost in order to meet competition. All products manufactured at the plant use the same structure, the same machinery and the same labor force. Your lawyer advises that your best defense is to prove that your price for product A meets or exceeds the cost of producing it. Share your understanding on use of various methods of cost allocation to justify the price of your product.

11. Forbes calls the elasticity the "lethal equation", in connection with the US Postal Service, "every time postal rates go up, postal volume goes down." Extend the relevance the concept of price elasticity of demand in electric industry.

Section - D (20 marks)

The following table is providing information, as per CERC guidelines, regarding tariff components of Biomass Gasification based power generation project.

Capacity	1	MW
Project Life	20	years
PLF	60	%
Auxiliary Consumption	10	%

Plant Cost (without subsidy)	572.66	Rs. In Lakh/MW
Capital Cost	422.66	Rs. In Lakh/MW
Depreciation for first 12 years	5.83	%
Depreciation from 13th year onwards	2.51	%
Debt	295.862	Rs. In Lakh
Equity	126.798	Rs. In Lakh
Interest on Loan	13	%
Fuel		
Fuel Requirement	1.25	kg/kWh
Feedstock Price	3000	Rs/MT
Fuel Cost Escalation	3%	
O&M		
O&M Cost	42.29	lakhs/MW
O&M Cost Escalation	5.72	%
Maintenance Spares	15	% of yearly O&M cost

Applicable Tariff for FY 2013-2014 for Biomass Power Projects

States	Applicable Tariff
Andhra Pradesh	Rs. 5.55
Haryana	Rs. 6.05
Maharashtra	Rs. 6.15
Punjab	Rs. 6.24
Rajasthan	Rs. 5.52
Tamilnadu	Rs. 5.49
Uttar Pradesh	Rs. 5.61
Others	Rs. 5.80

Assumptions:

1. Tariff Rs. 6.5
2. Fuel cost four months equivalent of annual generation.
3. Operating and Maintenance expenses One month equivalent of O &M expenses
4. Receivables two month equivalent of annual charge.

You are required to calculate the following:

a. Annual Net Generation **(01 Marks)**
b. Fixed Cost components **(05 Marks)**
c. Variable Cost components **(04 Marks)**
d. Auxiliary Power Consumption **(01 Marks)**
e. Tariffs Definitions: **(09 Marks)**
    a. Nominal Tariffs
    b. Discount Tariffs
    c. Levelized Tariffs