

1079

M.E. Electrical Engineering (Power Systems)

3rd Semester

EE-8301: Power System Deregulation

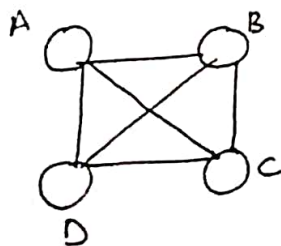
Time allowed: 3 Hours

Max. Marks: 50

NOTE: Attempt any five questions.

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- I. (a) What are the different entries in deregulated electricity market? Explain them in brief.
(b) Explain the reform motivation and fundamentals of deregulation market. (5+5)
- II. What is meant by congestion management in power system? How it is handled in de-regulated power system? (10)
- III. (a) What is meant by bilateral and multilateral transaction?
(b) Explain the terms unbundling, wheeling and deregulation. (5+5)
- IV. Explain the different auction mechanism employed in competitive electricity markets. (10)
- V. Consider a four utility joint dispatch as shown in Fig. 1. Find the system cost reduction when utilities operate through a joint dispatch as compared to when they operate indecently:

Fig 1.

Generation capacity and composite
Cost functions (2 (MWh))

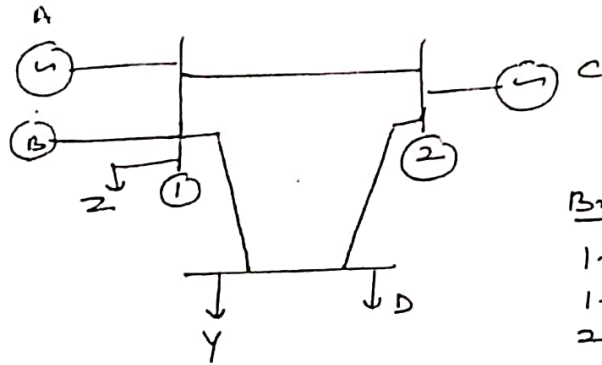
Utility	a ₀	b ₀	c ₀	P _{max}	P _{min}	P _D
A	1.8	10.5	0.5	150	20	120
B	2.8	26.2	0.8	250	30	200
C	3.0	12.5	0.4	230	40	180
D	4.0	13.7	0.6	125	50	75

(10)

P.T.O.

(2)

VI. For a given 3-bus system and one loop, determine the calculation of power flow when more than one transaction is carried out in system. You can assume the amount of power contract of 400mw.



Branch	X (PU)	cap(Mw)
1-2	0.2	126
1-3	0.2	250
2-3	0.1	130

Fig 2

(10)

VII. Explain the accurate method of ATC calculation with relevant equations. Draw a flowchart for computation of ATC.

(10)

VIII. (a) Write a detailed notes on buying and selling ancillary services.

(b) Explain the short-run marginal cost based pricing with suitable example.

(5+5)