

Roll No.

Total Pages : 4

325203

May 2019

**M.Tech. (Power Systems) IInd Semester
RESTRUCTURED POWER SYSTEMS
(MPS-603)**

Time : 3 Hours]

[Max. Marks : 75

Instructions :

- (i) *It is compulsory to answer all the questions (1.5 marks each) of Part-A in short.*
- (ii) *Answer any four questions from Part-B in detail.*
- (iii) *Different sub-parts of a question are to be attempted adjacent to each other.*

PART-A

- 1. (a) Define and describe the OASIS in brief. (1.5)
- (b) Define and describe Non-performing obligations in brief. (1.5)
- (c) Define load elasticity? (1.5)
- (d) State the meaning of Real Time System. (1.5)
- (e) List few applications of Optimum power flow. (1.5)
- (f) What do you mean by tracking of power? (1.5)

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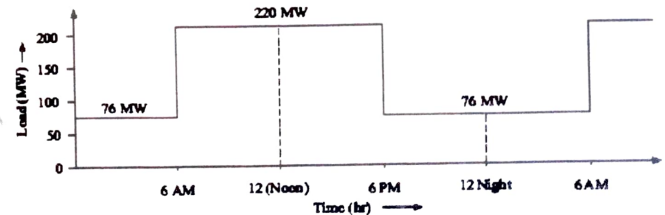
- (g) What do you mean by Distribution Generation? (1.5)
- (h) List the ancillary services in restructured electricity market. (1.5)
- (i) Define ATC and TTC. (1.5)
- (j) What do you understand by Risk Assessment? (1.5)

PART-B

2. (a) What are the motivations for restructuring the power industry? Describe the role of ISO, its functions and responsibilities. (10)
- (b) How Social Welfare Maximization possible may be after deregulation? (5)
3. What is the congestion in Power Systems? Describe the congestion management using real power rescheduling and load curtailment. (15)
4. (a) What are the markets for Ancillary services? Describe payment mechanism for it. (10)
- (b) Describe the methods for determining the payment for voltage support service. (5)

5. (a) How restructured power system is different than integrated system? Describe the after effects of Deregulation and new challenges arise. (10)
- (b) Describe the application of IT in restructured market. (5)
6. (a) Describe the flow of power and flow of money in restructured market. (10)
- (b) Give a brief account of recent trends in Restructuring Power Systems. (5)

7. The cost characteristics/bids of two gencos are as follows:
 $C1 = 0.1 P^2G1 + 40 PG1 + 120 \text{ ₹/hr}$
 $C2 = 0.125 P^2G2 + 30 PG2 + 100 \text{ ₹/hr}$
- And the daily load cycle of the system is given in Figure below :



Consider the 24 hours period from 6 AM one morning to 6 AM next morning. The maximum and minimum load on each unit is to be 125 MW and 20 MW respectively. They

make fair bids to ISO against demand of shown in daily load cycle as follows:

The bid of Genco 1 is $0.2 PG1 + 40$ `per MWh

$125 MW \leq PG1 \leq 20 MW$

The bid of Genco 2 is $0.25 PG2 + 30$ `per MWh

$125 MW \leq PG2 \leq 20 MW$

(15)
