

Reg. No. :

**Question Paper Code : 11234**

M.E./M.Tech. DEGREE EXAMINATIONS, APRIL/MAY 2023.

Second Semester

Power Systems Engineering

PS 4204 – RESTRUCTURED POWER SYSTEM

(Regulations 2021)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. List the different types of restructuring process.
2. Differentiate: Consumer behaviour and Supplier behaviour.
3. Classify the congestion management.
4. What is meant by nodal pricing?
5. Define: Shadow price
6. How to prepare DCOPF and ACOPF used in restructured power system?
7. Why black start capability is used in restructured power system?
8. Mention the various types of ancillary services.
9. State the National Electricity policy.
10. Identify different reforms in Indian power sector.

PART B — (5 × 13 = 65 marks)

11. (a) Describe the restructuring process of various entities involved in deregulation with suitable block diagram. (13)

Or

- (b) (i) How to classify the market models? Write the differences between various market models. (6)
- (ii) Discuss the need for deregulation of various power system. (7)

12. (a) Discuss the importance and features of congestion management in deregulated power system. (13)

Or

- (b) (i) Enumerate the reasons for Transfer capability limitation in restructured power system. (6)  
(ii) Describe the concepts of Congestion Management in restructured power system. (7)

13. (a) Analyze the ACOPF model for LMP calculation in deregulated power system environment. (13)

Or

- (b) Discuss about the Financial Transmission Rights (FTR) in power system under deregulated environment. (13)

14. (a) (i) Compare the different methods of loss allocation in transmission pricing. (6)  
(ii) Explain how to relate co-optimization of energy and reserve services in restructured power system. (7)

Or

- (b) Discuss in detail the different types of transmission pricing in restructured power system environment. (13)

15. (a) (i) Discuss the need for Availability Based Tariff (ABT) in restructured power systems. (6)  
(ii) Explain about the future reforms in Indian power sector. (7)

Or

- (b) Explain the role of National Load Dispatch Centre (NLDC) and Central Electricity Authority (CEA) as per Indian Electricity Act. (13)

PART C — (1 × 15 = 15 marks)

16. (a) Analysis market architecture depending upon timeline for various energy markets in the restructured power system. (15)

Or

- (b) Analysis the different types of tariff in deregulation environment of power system and write the importance of power exchange in Indian power sector. (15)