A

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

FIRST SEMESTER M. TECH DEGREE EXAMINATION

Electrical and Electronics Engineering

04EE 7405 Power System Economics

Max. Marks: 60 Duration: 3 Hours

Part A - Answer All Questions (Each Question carry 3 Marks)

1. Define the term 'market power' in electricity market.
2. Explain the term 'price discrimination' in energy market.
3. Explain the term generation capacity valuation.
4. Explain the term available transfer capacity with supporting statements.
5. Discuss the effect of capacitor on stability enhancement with the help of Equal Area Criteria.
6. Explain the situation of transient instability on feeders.
7. Explain the significance of reactive power requirement of a transformer.
8. Explain the tap changing phenomenon in transformers. What is its significance?

Part B – Answer All Questions

9. Explain the role of ISO in energy market. (6 marks)

Or

10. Discuss in detail about the electricity market structure and explain each models' role. (6 marks)
11. Explain the terms 'Monopoly' and 'Oligopoly' in energy market with necessary explanations. (6 marks)

Or

12. Define the terms 'perfect competition' in energy market and discuss about its features. (6 marks)
13. Discuss how LMP is being influenced by the transmission congestion. Explain with a real case study. (6 marks)

Or

14. Explain a) Post Stamp Rate Method b) Contract Path Method c) MW Mile method (6 marks)
15. Explain any three FACTS devices with its significance role in energy market. (6 marks)

Or

16. Explain the significance of DGs in various perspective of energy market. (6 marks)

17. A 330kV grid system is feeding city substation with, $X_1 = 0.0027+j0.027$ pu, the city substation (L_1) is feeding urban substation (L_2) with, $X_2 = 0.0017 + j0.026$ pu. Load $L_1 = 200MW + 40$ MVAR near to the grid supply and $L_2 = 600MW + 120$ MVAR at the end. The tie line between the city substation and urban substation is feeding a north power house. Consider the situation that, the north power house fails. Analyze the stability of the system. If unstable, what kind of support will prevent it from collapse? (6 marks)

Or

18. Explain a) SVC b) TCSC (6 marks)
19. Discuss about various tariff features adopted to aid the DSM. (6 marks)

Or

20. Consider a transmission system with the sending end voltage of 11kV and receiving end voltage of 10.5kV with a lagging power factor of 0.85. The connected load is 100 kW. The transmission line is having an impedance of 0.0014 + j 0.20 ohms. Calculate the % voltage regulation and % drop/km. Assume required values if any. (6 marks)