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APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY
SECOND SEMESTER M.TECH DEGREE EXAMINATION, MAY 2016

Electrical and Electronics engineering
(Power Systems)

04EE 6412 Power system control and security

Max. Marks : 60

Duration:3 Hrs

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

1. What is meant by isochronous governor?
2. How shunt reactor is used for voltage control?
3. Briefly explain the working of thyristor controlled reactor.
4. List few advantages of tap changing transformers
5. Which all are the four operating states of power system?
6. What is meant by contingency analysis?
7. Explain the application of under frequency relays.
8. What is maximum likelihood criterion?

Part B – Answer All Questions (Each Question carry 6 Marks)

9. A small system consists of 4 identical 500MVA generating units feeding a total load of 1020MW. The inertia constant H of each unit 5.0 on 500MVA base. The load is varied by 1.5% for a 1% change in frequency. When there is a sudden percent of load by 20MW,
 - a) Determine the system block diagram with constants H and D expressed on 2000MVA base.
 - b) Find the frequency deviation , assuming that there is no speed governing action.

or

10. Explain how percent speed regulation affects load sharing by parallel units?
11. Briefly explain different types of static var systems

or

12. Explain the use of series capacitors in transmission system.
13. Discuss modeling of static var systems

or

14. Discuss modeling of transformer ULTC control system.
15. Discuss the factors affecting power system security.

or

16. Explain the method for detection and identification of bad measurements in power system.
17. Explain the method of contingency selection in power system.

or

18. Explain contingency analysis with flow chart.
19. What is meant by Supervisory control and data acquisition system? Explain.

or

20. Discuss the use of underfrequency relays . Explain principles of load shedding.