

No. of Printed Pages : 03

Roll No.

722

B. Tech. EXAMINATION, May 2019

(Seventh Semester)

(Old Scheme) (Re-appear Only)

(EE)

EE411

Power System Operation and Control

Time : 3 Hours]

[Maximum Marks : 100

Before answering the question-paper candidates should ensure that they have been supplied to correct and complete question-paper. No complaint, in this regard, will be entertained after the examination.

Note : Attempt any *Five* questions.

1. (a) Compare the steady state and dynamic operations of an isolated system. **10**

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- (b) Draw a neat sketch of a typical turbine speed governing system and derive its block diagram representation. **10**
2. (a) For a single area system, show that the static error in frequency can be reduced to zero using frequency control and comment on the dynamic response of an uncontrolled system with necessary equations. **10**
- (b) Explain clearly about proportional plus integral LFC with a block diagram. **10**
3. (a) Explain, why the production cost of electrical energy is treated as a function of real power generation ? **10**
- (b) What are the difference between optimal operation of generators in thermal stations and optimal scheduling of hydro thermal systems. **10**
4. (a) Explain the various factors to be considered in allocating generation to different power stations for optimum operation. **10**

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- (b) Explain, how the incremental production cost of a thermal power station can be determined ? **10**
5. (a) What is steady state, transient and dynamic stabilities ? **10**
- (b) Describe equal area criterion of power system stability. **10**
6. (a) Describe dynamics of synchronous machine. **10**
- (b) What are the various factors affecting transient stability of power system. **10**
7. (a) Derive the transfer function of an overall excitation system. **10**
- (b) How AVR improves transient stability of system ? **5**
- (c) Explain the effect of varying excitation of a synchronous generator. **5**
8. (a) Compare the different types of compensating equipment for transmission systems. **10**
- (b) Explain the concepts of voltage stability and voltage collapse. **10**

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