

B.Tech. SEM -VII Electrical 2014 Course (CBCS) : SUMMER - 2019
SUBJECT : OPERATION & CONTROL OF POWER SYSTEM

Day : Saturday
Date : 11/05/2019

Time : 02.30 PM TO 05.30 PM
Max. Marks : 60

S-2019-2810

N. B. :

- 1) All questions are **COMPULSORY**.
- 2) Figures to the right indicate **FULL** marks.
- 3) Draw neat and labeled diagram **WHEREVER** necessary.
- 4) Assume suitable data, if necessary.

Q. 1 Define transient stability and explain point by point method for solution of swing equation in detail. (10)

OR

Explain equal area criterion of stability for following types of disturbances: (10)

- a) Sudden change in mechanical input
- b) Sudden loss of one of parallel lines

Q. 2 What is mean by unit commitment in optimal system operation? Explain priority list method of unit commitment in detail. (10)

OR

- a) Derive the condition for economic load dispatch neglecting transmission line losses. (05)
- b) Explain dynamic programming method of unit commitment. (05)

Q. 3 With neat block diagram explain two area load frequency control and concept of Area Control Error (ACE). (10)

OR

What is mean by automatic generation control? Sketch and explain the function of each component of turbine speed governing system. (10)

Q. 4 What is the need of reactive power compensation in power system? Explain with neat diagram various types of static VAR compensator. (10)

OR

- a) Explain system voltage and reactive power dependency. (05)
- b) Explain reactive power generation by synchronous machine. (05)

Q. 5 List out different types of FACTS controllers and write brief note on sub synchronous resonance. (10)

P. T. O.

OR

Explain the principle of working of: (10)

- a) Static Compensator (STATCOM)
- b) Unified Power Flow Controller (UPFC)

Q. 6 Explain following types of power interchange: (10)

- a) Capacity interchange
- b) Diversity interchange
- c) Emergency power interchange

OR

Write short note on interchange of power between interconnected utilities and explain concept of energy banking in detail. (10)

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