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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