M. Tech.-I (Electrical -Power System) (CBCS – 2015 Course) :
WINTER - 2018
SUBJECT: POWER SYSTEM MODELING

Day : Monday
Date : 10/12/2018

W-2018-3127

Time: 11.00 AM TO 02.00 PM
Max. Marks: 60

N.B.

1) All questions are **COMPULSORY.**
2) Figures to the right indicate **FULL** marks.
3) Answers to both the sections should be written in **SEPARATE** answer book.

SECTION - I

Q.1 What are various types of modeling methods which can be used for power system analysis? Explain various area of power system modeling. **(10)**

OR

Develop simplified model of boiler and steam turbine. **(10)**

Q.2 Explain online tap changer for power transformer. Derive mathematical expression for an auto transformer and tap changing transformer. **(10)**

OR

Explain use of phase shifting transformer and discuss modeling of this type of transformer. What are assumptions in such modeling? **(10)**

Q.3 What are types of transmission lines? Obtain simplified model of long transmission line. **(10)**

OR

What is the importance of transmission lines in power system stability studies? Explain basic T and Pi model of transmission line with steady state equations **(10)**

SECTION – II

Q.4 Explain flux linkage model of synchronous machine which includes effect of saturation. **(10)**

OR

Explain the importance of Park's transformation in building up salient pole synchronous machine model for steady state. **(10)**

Q.5 Explain need and importance of modeling of excitation system. Explain various excitation configurations. **(10)**

OR

Explain with suitable diagram with primitive excitation systems and explain mathematical model of non-continuously acting excitation system. **(10)**

Q.6 State the importance of load modeling and discuss various load models. **(10)**

OR

Explain induction motor as load on power system with suitable diagram and mathematical expressions. State various assumptions made in modeling of induction motor as a load. **(10)**

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