WINTER-2017

M.TECH-II (Electrical - Power System) CBCS-2015 Course)

SUBJECT: POWER SYSTEM DYNAMICS

Day : Monday
Date : 27-11-2017 W-2017-2820

Time: 11:00 AM TO 2:00 P.M.
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 Explain modeling of steam turbine with the help of relevant derivation. **(10)**

OR

What is need of power system modeling? Explain different areas of power system modeling. **(10)**

Q.2 Develop suitable model for phase shifting transformer and auto transformer. **(10)**

OR

Explain use of auto transformer and phase shifting transformer in power system. Discuss the importance of mathematical modeling of such transformers. **(10)**

Q.3 Explain d-q transformation using alpha- beta variables with respect of transmission line modeling. **(10)**

OR

Explain transmission line Pi equivalent circuit for steady state with relevant equations and phasor diagram. **(10)**

SECTION – II

Q.4 Obtain simplified current model of synchronous machine. State and justify the assumptions made for development of such model. **(10)**

OR

What do you mean by infinite bus? Write mathematical interpretation of synchronous machine connected to infinite bus. **(10)**

Q.5 Explain continuously and non-continuously acting regulator system with suitable block diagram. **(10)**

OR

Obtain model in the form of block diagram of typical excitation system. Define excitation system response ratio and ceiling voltage for excitation. **(10)**

Q.6 Discuss important features of power system composite load models. **(10)**

OR

Explain various load categories. Explain any one of them with mathematical expressions. **(10)**