M. TECH.-II (ELECTRICAL -POWER SYSTEM) (CBCS – 2015 COURSE) : WINTER - 2017
SUBJECT: POWER SYSTEM DYNAMICS

Day : **Monday**
Date : 29-01-2018

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

W-2017-2820

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 Sketch and explain the reactance diagram of " Two machine series reactance system" and corresponding clark's diagram. **(10)**

OR

Enlist the actions taken against unstable system connected to grid. **(10)**

Q.2 Express the small signal model of power system in terms of state equations. **(10)**

OR

Why is it necessary to calculate initial conditions based on the system operating point while developing the synchronous machine model and how are the conditions derived? **(10)**

Q.3 With suitable diagram, explain the use of Routh's Hurwitz criterion to solve the characteristics equation of the system. **(10)**

OR

Explain the use of pre-calculated swing curves for the analysis of large disturbances on power system. **(10)**

SECTION - II

Q.4 Explain structure and tunning of PSS. Also give classifications of PSS and brief information about recent developments in PSS. **(10)**

OR

With respect to PSS design, explain following a) Phase lead compensation b) Exciter gain c) Excitation control design. **(10)**

Q.5 Explain effect of inclusion of load and SVC dynamics in multi-machine model of power system. **(10)**

OR

Discuss elementary mathematical model of overall power system. State modifications to arrive at classical multi-machine model of power system. **(10)**

Q.6 State and explain different methods of islanding. **(10)**

OR

Define voltage collapse and explain various causes of voltage collapse. **(10)**

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