

Total No. of Printed Pages:2

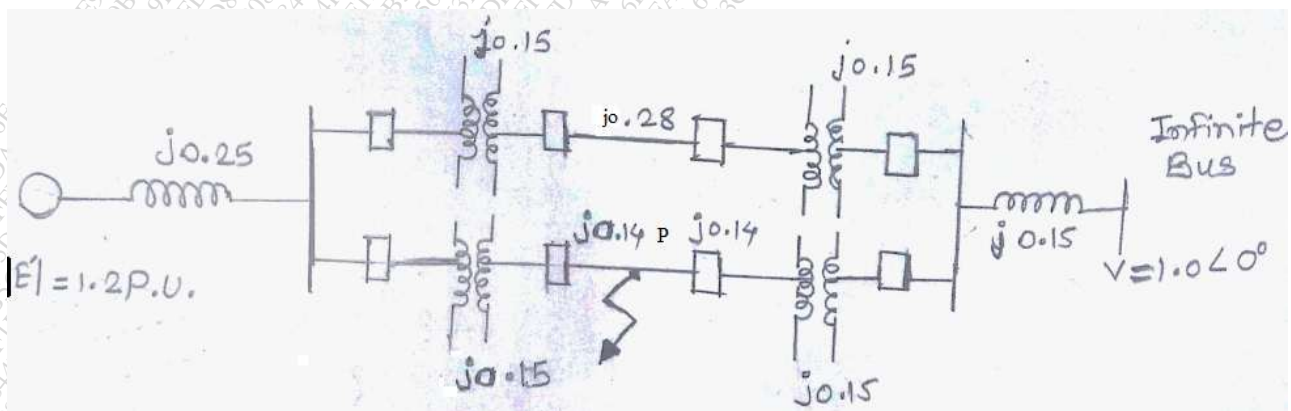
SUBJECT CODE NO: E-8212
FACULTY OF ENGINEERING AND TECHNOLOGY
M.E. (Electrical Power System) Examination Nov/Dec 2017
Power System Dynamics & Stability
(Revised)

[Time: Three Hours]

[Max.Marks:80]

Please check whether you have got the right question paper.

- N.B
- 1) Solve any two questions from each section
 - 2) Assume suitable data & necessary
- Section A**
- Q.1
- | | |
|---|----|
| a) Explain the requirement of reliable power system | 05 |
| b) Derive an expression of swing equation for one machine connected to infinite bus | 10 |
| c) What is inertia constant? Drive an expression for inertia constant | 05 |
- Q.2
- | | |
|---|----|
| a) Derive power angle curve expression of synchronous machine | 10 |
| b) Explain equal area criterion applied to single machine tied to infinite bus through two parallel lines with respect to various faults in the system. | 10 |
- Q.3
- | | |
|--|----|
| a) Explain classical model of multi machine system & derive swing equation for regulated synchronous machine | 10 |
| b) Find the critical angle for the system shown for 3- phase fault at the point P. the generator is 10 delivering 1.0 P.U power under pre fault condition. | 10 |



Section B

- Q.4 a) Derive parks transformation matrix & explain physical interpretation of d-q-o transformation 10
b) Explain in detail simplified linear model of synchronous machine connected to infinite bus 10
- Q.5 a) Explain in detail state space description of excitation system with diagram 10
b) Explain in detail typical excitations configuration & effect of excitation on generator 10
- Q.6 a) Define small signal angle instability explain control & stability provided by FACTS devices 10
b) Explain factors affecting voltages instability & collapse. 10