

315336

12526

3 Hours / 70 Marks

Seat No. 

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- Instructions* –
- (1) All Questions are *Compulsory*.
  - (2) Answer each next main Question on a new page.
  - (3) Illustrate your answer with neat sketches wherever necessary.
  - (4) Figures to the right indicate full marks.
  - (5) Assume suitable data, if necessary.
  - (6) Use of Non-programmable Electronic Pocket Calculator is permissible.
  - (7) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

**Marks**

1. Attempt any FIVE of the following: 10
- a) Define reactance diagram.
  - b) State any two adverse impacts of frequency variations on supply agencies.
  - c) Define the term per unit impedance.
  - d) Mention any two components used in AGC loop.
  - e) State the function of (ALFC) Automatic load frequency control.
  - f) Differentiate large disturbance and small disturbance in power system. (Any two points)
  - g) Name the different types of load Dispatch Centres in India.

P.T.O.

2. Attempt any THREE of the following:

12

- Draw and explain a single line diagram of a power system.
- State the concept of reactive power compensation. Name any two reactive power compensating equipments.
- Draw the block diagram of Automatic Generation Control (AGC) for generating System.
- With the help of a neat diagram, explain the working principle of a STATCOM.

3. Attempt any THREE of the following:

12

- State any four major functions of load dispatch center.
- Draw the per unit reactance diagram for the system shown in figure below choose generator as a base having rating 11 kV, 100 mVA.

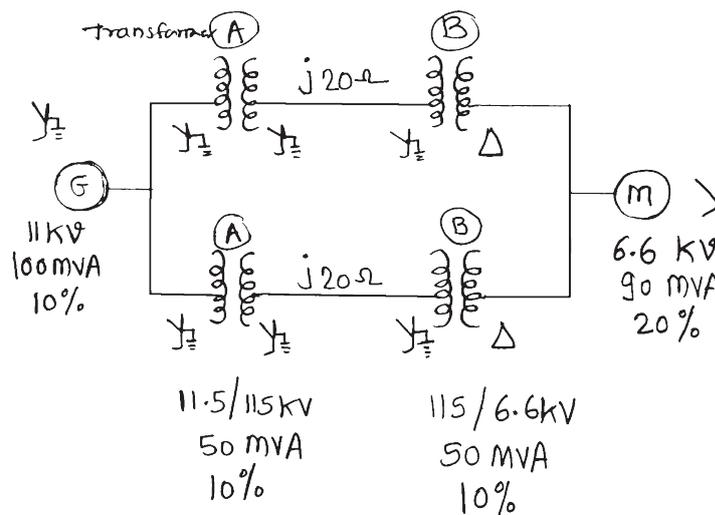


FIG. NO. 1

- Explain the relation between real power flow and frequency.
- Explain any two methods that can be adopted for the improvement of Transient stability condition of power system.

- 4. Attempt any THREE of the following: 12**
- a) Draw a labelled schematic diagram of Automatic Voltage Control (AVC) used for an alternator.
  - b) State the impact of Environmental factor on load forecasting.
  - c) Explain the impact of variation in voltage on consumers and supply agencies (generation plants).
  - d) Define Dynamic stability. State any two methods to improve dynamic Stability limit.
  - e) Explain need of load forecasting in power systems operation.
- 5. Attempt any TWO of the following: 12**
- a) Explain any six advantages of using the per unit system in power system analysis.
  - b) Explain the shunt compensation and series compensation method of reactive power compensation for transmission line
  - c) Explain the relation between reactive power balance and voltage of system.
- 6. Attempt any TWO of the following: 12**
- a) Describe the working of turbine speed governing system for turbo generator speed control with a labelled schematic diagram.
  - b) Explain steady state stability conditions with the help of power angle diagram for the power system.
  - c) i) Define power system stability and instability.  
ii) State the difference between steady state stability and transient state stability.
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