

**M. TECH.-I (ELECTRICAL -POWER SYSTEM) (CBCS – 2015  
COURSE) : WINTER - 2017  
SUBJECT : POWER SYSTEM MODELING**

Day : **Monday**  
Date : **22/01/2018**

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

**W-2017-2795**

**N.B.:**

- 1) All questions are **COMPULSORY**.
- 2) Figures to the right indicate **FULL** marks.
- 3) Draw neat and labeled diagram **WHEREVER** necessary.
- 4) Assume suitable data if necessary.

---

**Q.1** Discuss the different areas of power system modeling and need of modeling. [10]

**OR**

Derive the mathematical model of boiler used in steam power station.

**Q.2** Develop model for two winding power transformer with and without tap changing facility. [10]

**OR**

Explain construction, working and application of phase shifting transformer.

**Q.3** Obtain model of long transmission line. [10]

**OR**

What are the various types of transmission lines? Which parameters are required to be considered for modeling of transmission lines?

**Q.4** What is Park's transformation? What is its usefulness in modeling of synchronous machine? [10]

**OR**

What do you understand by infinite bus? Write mathematical interpretation of synchronous machine connected to infinite bus.

**Q.5** Model the excitation system making use of static electronic components. [10]

**OR**

Explain role of voltage regulators in excitation system. Also explain continuously acting regulator excitation system.

**Q.6** Compare static load with respect to dynamic load. [10]

**OR**

Explain from load point of view induction motor modeling.

\* \* \* \*