DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY,
LONERE – RAIGAD – 402 103
Winter Semester Examination – December – 2018

Branch: M.Tech. (Electrical Power System) **Semester: I**
Subject with Subject Code: Power System Modeling (MTEE101)
Marks: 60 **Date: 24/12/2018** **Time:3 Hrs.**

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Instructions to the Students

1. Each question carries 12 marks.
2. Attempt any five questions of the following.
3. Illustrate your answers with neat sketches, diagram etc., wherever necessary.
4. If some part or parameter is noticed to be missing, you may appropriately assume it and should mention it clearly.

(Marks)

Q.1. A] Model & Derive the transfer function of any one non-electrical component. Define time constant in transfer function. (6)
B] Elaborate need for modeling of power system & different areas of power system analysis. (6)

Q.2. A] What is Q & D axis? Derive Park's transformation matrix. (6)
B] Derive the expression of 3 phase synchronous machine for classical model & draw the model. (6)

Q.3. A] Analyze Single-Machine Infinite Bus (SMIB) Configuration. (6)
B] Determine & draw net mmf wave due to the three phase winding in stator of synchronous machine. (6)

Q.4. A] How excitation control is applied? Describe basic elements. (6)
B] Draw & explain excitation system control and protective circuits. (6)

Q.5. A] What are types of excitation systems? Draw & explain any one in detail. (6)
B] Analyze modeling of separately excited dc exciter. (6)

Q.6. A] What is SVC? Why is it used? Draw the Characteristics of SVC with system load characteristics and explain. (6)
B] Draw & explain composite structure of static & dynamic load model. (6)
