SIDDHARTH GROUP OF INSTITUTIONS :: PUTTUR
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QUESTION BANK (DESCRIPTIVE)

Subject with Code : PMMA(16EE4301) **Course & Branch**: M.Tech – PE & CS

Year & Sem: I-M.Tech & I-Sem **Regulation:** R16

UNIT –I

BASIC CONCEPTS OF MODELING

1) What is Kron's primitive machine? Derive the voltage, current equations of Kron's Primitive machine? [10M]
2) Write the basic two pole machine representation of commutator machines? [10M]
3) Write the basic two pole machine representation of three phase synchronous Machine with Damper bars? [10M]
4) Write the basic two pole machine representation of three phase Induction Machine? [10M]
5) Write the basic two pole machine representation of Amplidyne? [10M]
6) Write the basic two pole machine representation of three phase Synchronous Machine Without damper bars? [10M]
7) Derive the torque equations of Kron's Primitive machine? [10M]
8) Write the basic two pole machine representation of Separately Excited DC Machine? [10M]
9) Write the basic two pole machine representation of DC shunt machine with Interpoles? [10M]
10) Explain in detail the concept of two pole machine representation with suitable circuit diagram? [10M]

UNIT –II

DC MACHINE MODELING

1) Explain the generalized mathematical model of the DC series motor? [10M]
2) Explain the generalized mathematical model of the separately excited DC Motor? [10M]
3) Explain the generalized mathematical model of the DC shunt motor? [10M]
4) Explain the steady state and transient analysis of the separately excited DC Motor? [10M]
5) Derive the transfer function of separately excited DC Motor? [10M]
6) Explain the steady state and transient analysis of the DC Shunt Motor? [10M]
7) Explain the steady state and transient analysis of the DC Series Motor? [10M]
8) Explain the concept of sudden application of Inertia Load? [10M]
9) Explain the concept of Linearization Techniques for small perturbations? [10M]
10) Explain the generalized mathematical model of the DC series and shunt motor? [10M]

UNIT –III

MODELING OF THREE PHASE INDUCTION MACHINE

1) Explain the transformation from three phase to two phase and vice versa in detail? [10M]
2) Explain the transformation from rotating axes to stationary axes and vice versa in detail? [10M]
3) Explain the physical concept of Park's transformation? [10M]
4) Explain the mathematical model of Induction machine? [10M]
5) Explain the steady state analysis of Induction machine? [10M]
6) Explain the d-q model of induction machine in Stator reference Frame? [10M]
7) Explain the d-q model of induction machine in Rotor reference Frame? [10M]
8) Explain the d-q model of induction machine in Synchronously Rotating reference Frame? [10M]
9) Explain the signal flow graph of the induction machine per unit model? [10M]
10) Discuss about the dynamic simulation of induction machine? [10M]

UNIT –IV

MODELING OF SINGLE PHASE INDUCTION MACHINE
&
MODELING OF SYNCHRONOUS MACHINE

1) Write the Comparison between single phase and poly -phase induction motor? [10M]
2) Explain the Cross field theory of single-phase induction machine? [10M]
3) Explain the steady state analysis of single-phase induction machine using Cross field theory? [10M]
4) Explain the steady state torque of single-phase induction machine? [10M]
5) Explain the steady state torque and steady state analysis of single-phase induction machine using Cross field theory? [10M]
6) Explain the phase Co-ordinate model of synchronous Machine? [10M]
7) Explain the Space phasor (d-q) model of synchronous Machine? [10M]
8) Explain the Steady state operation of synchronous Machine? [10M]
9) Write the Mathematical model of PM Synchronous motor? [10M]
10) Write the importance of synchronous machine inductances? [10M]

UNIT –V

MODELING OF SPECIAL MACHINES

1) Explain the Operating principle of Switched Reluctance Motor? [10M]
2) Explain the Construction and functional Aspects of Switched Reluctance Motor? [10M]
3) Derive the Average torque and Energy Conversion Ratio of Switched Reluctance Motor? [10M]
4) Write the Mathematical model of Switched Reluctance Motor? [10M]
5) Explain the Operating principle of Permanent Magnet Brushless DC Motor? [10M]
6) Write the Mathematical model of Permanent Magnet Brushless DC Motor? [10M]
7) Explain the Permanent Magnet Brushless DC Motor Drive Scheme? [10M]
8) Explain the Operating principle and Mathematical model of Permanent Magnet Brushless DC Motor? [10M]
9) Explain the commutation windings and SRM modeling with suitable circuit diagrams? [10M]
10) Explain the importance of flux current position curve fitting? [10M]

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