EE3303 ELECTRICAL MECHANICS - I

IMPORTANT QUESTIONS

UNIT - I ELECTROMECHANICAL ENERGY CONVERSION

2 - Mark

1. Define torque in magnetic field systems.

2. Explain magnetic force.

3. Identify co-energy in singly excited.

4. Demonstrate Winding Inductances.

5. Explain magnetic fields in rotating machines.

6. Define magnetic saturation and leakage fluxes.

13 - Mark

1. Explain Fundamentals of Magnetic circuits.

2. Describe Statically and dynamically induced EMF.

3. Demonstrate Principle of electromechanical energy conversion forces.

4. Identify energy balance in magnetic circuits.

5. Define multi excited magnetic field system mmf of distributed windings.

6. Explain the Introduction to Indian Standard Specifications (ISS).

7. State the Role and significance of electromechanical energy conversion in testing.

UNIT - II DC GENERATORS

2 - Mark

1. Explain the Principle of operation.

2. Define constructional details

3. State EMF equation

4. What is armature reaction?

5. Write about compensating winding.

6. What is commutation?

7. Explain interpoles.

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8. What is equalizing connections?

13 - Mark

1. Explain armature windings and its types.

2. Write about wave shape of induced emf.

3. What is demagnetizing and cross magnetizing Ampere turns?

4. What are the methods of improving commutation? Explain with neat sketch.

5. Explain OCC and load characteristics of different types of DC Generators.

6. Describe the Parallel operation of DC Generators.

7. Explain applications of DC Generators.

UNIT - III DC MOTORS

2 - Mark

1. Define principle of operation.

2. Demonstrate significance of back emf.

3. Write about speed control of DC motors losses.

4. Define efficiency in DC machine.

5. What is Brake test?

6. What is Hopkinson's test?

7. What is Retardation test?

13 - Mark

1. Describe torque equations and power developed by armature

2. Explain starting methods of DC motors

3. Demonstrate load characteristics of DC motors

4. Describe condition for maximum efficiency.

5. Explain testing of DC Machines

6. Write about Separation of core losses with detailed reference

7. Explain applications of DC motors

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UNIT - IV SINGLE PHASE TRANSFORMER

2 - Mark

1. Define equivalent circuit.

2. State phasor diagrams.

3. Define polarity test.

4. Write about voltage regulation.

5. What is losses and efficiency?

6. What is all day efficiency?

7. Define back-to-back test

13 - Mark

1. Explain Construction and principle of operation

2. Describe open circuit and short circuit tests.

3. Identify separation of core losses.

4. Explain parallel operation of single-phase transformers.

5. Describe the applications of single-phase transformer.

UNIT - V AUTOTRANSFORMER AND THREE PHASE TRANSFORMER

2 - Mark

1. What are the applications of autotransformer?

2. What three Phase Transformer?

3. Define construction.

4. What are the applications of Scott connection?

13 - Mark

1. Explain construction and working of auto transformer.

2. Describe comparison with two winding transformers.

3. Explain types of connections and their comparative features.

4. Write about Scott connection with detailed reference.