

ECE DEPARTMENT
19ECT201- ELECTRICAL ENGINEERING AND INSTRUMENTATION
III SEMESTER
QUESTION BANK

PART B

UNIT I:

1. What is the back emf in a DC Motor?
2. Why is the emf not zero when the field current is reduced to zero in generator?
3. Starter is necessary for DC Motor. Justify
4. What is the principle of generator?
5. Compare and Contrast DC Motor and DC Generator
6. Mention different methods of speed control in DC Shunt motor.
7. State the effects of armature reaction in DC Machines.
8. Under what circumstances does a DC Shunt generator fails to build up.
9. A DC Series motor should not be started without load. Why?
10. Write the general expression for the speed of a DC motor in terms of supply voltage and flux per pole.

UNIT II:

1. Classify the transformer according to the construction.
2. Design an equivalent circuit of a transformer
3. Can a transformer work on DC? Justify.
4. What is a voltage regulation of a transformer?
5. Why short circuit test is performed on high voltage side of a transformer?
6. What is the necessity of parallel operation of transformer.
7. Why is the transformer core laminated?
8. Compare Core and Shell type transformer.
9. Give the emf equation of a transformer and define each term.
10. Define all day efficiency of a transformer.
11. Give the applications of transformer

UNIT III:

1. Why an induction motor is called as rotating transformer?

2. Why an induction motor never runs at its synchronous speed?
3. Give the condition for maximum torque for 3 phase induction motor, When it is running?
4. What are the methods available for making single phase induction motor a self starting?
5. Why single phase induction motors have low PF?.
6. Differentiate between “capacitor start” & “capacitor start capacitor run” single phase induction motor?
7. Explain why single phase induction motor is not a self starting one?
8. Define slip in an Induction Machine.
9. List the applications of single phase induction motor.
12. Difference between Alternator & Generator
13. Classify the induction motor according to the construction.
14. What is the difference between single phase and three phase induction motor.
15. Classify the types of rotor in induction motor.

UNIT IV:

1. List out the dynamic characteristics of any measuring instrument?
2. Define primary sensing element
3. Define limiting errors and instrumental errors
4. Mention some advantages of electrical transducers
5. Define strain gauge
6. Mention the applications of LVDT
7. What is piezo electric effect
8. What are the types of ADC.
9. Differentiate resistive and inductive transducer.
10. What is the standardization of potentiometer.

UNIT V:

1. List the advantage of digital voltmeter.
2. What are the advantages of LCD over LED.
3. Explain the significance of negative feedback.
4. What are the various types of digital voltmeter.

5. What are AC and DC bridge circuits
6. State the advantages of Wein bridge.
7. How A/D converter can be used as encoder?
8. What is inverse transducer.
9. Give the principle of capacitive transducer.
10. Functional operations of digital data acquisition system.

PART B

UNIT I:

1. Load characteristics of DC Shunt and Series Generator.
2. Types of DC Motor, Torque equation
3. Operating Principle of DC Shunt motor
4. Speed Control methods of DC Motors
5. Theory of operation of DC Motor
6. Conditions to build a back emf in DC motor.

UNIT II:

1. Construction and working principle of Single Phase transformer, EMF equation
2. OC and SC test of Single phase transformer
3. Tap changing in transformers
4. Types of testing of transformer
5. Deduce the equivalent circuit of a transformer
6. Explain about the transformer losses and efficiency

UNIT III:

1. Construction of Single Phase induction Machine
2. Starting Methods of Single phase induction motor
3. Torque slip characteristics of an induction motor and show starting torque and breakdown torque
4. Rotor types in the induction motor
5. Elucidate double field revolving theory in single phase induction motor and list out the types of single phase induction motor
6. EMF equation of alternator
7. principle of operation of synchronous motor with diagram

UNIT IV:

1. Static and Dynamic characteristics of a measuring instruments
2. Generalise the requirements needed for the materials to be used in RTDs.
3. Detail about ADC and DAC converter
4. Thermistor and thermocouple
5. Classify three types of variable inductance transducers. Explain the working on the principle of change in self inductance.
6. LVDT Construction and working principle.

UNIT V:

1. Wheatstone bridge and its conditions for balance.
2. Transducer classification and principle of operation
3. Construction Of Digital Signal Oscilloscope.
4. Generalize the requirements needed for the materials to be used in RTDs.