



ACE
Engineering College
(with a Difference in Excellence)

An AUTONOMOUS Institution

Question Paper Code:

EE203ES

ACE-R20

Semester End Examination
I B. Tech- II Semester Supply - JUNE-2022
Basic Electrical Engineering
(Common to ECE,CSM,CSO)

Time: 3 Hours

Max. Marks: 70

H. T. No

Answer any 5 Questions out of 8 Questions from the following

Q.No	Question	Marks
1. a)	Give a detailed comparison of series and parallel circuit.	07
b)	What are the applications, merits and demerits of series circuit?	07
2. a)	Explain the behaviour of AC through R-C series circuit. Draw corresponding Phasor diagram.	07
b)	Calculate the current, power, power factor, and voltage across the resistor of 8 Ohms in series with a inductor of 20 H and a capacitor of 14 Micro F excited by an AC supply of 110 V, 50 Hz.	07
3. a)	Draw a no load phasor diagram of a single phase transformer and explain it.	07
b)	Enumerate various losses in a transformer. How can these losses be minimized?	07
4. a)	Derive the necessary equations to convert (i) A star network to a delta network. (ii) Delta network to a star network.	07
b)	Derive an expression for the effective resistance of three resistors connected in series.	07
5. a)	Explain the principle of working of a single phase transformer.	07
b)	Derive from the first principles, the emf equation of a single phase transformer.	07
6. a)	What are the differences between a DC shunt motor and a DC series motor?	07
b)	Explain the principle of torque production in a DC motor.	07
7. a)	Explain the following (i) Power factor improvement (ii) Battery Backup.	07
b)	Explain types of wires and cables. What are the different earthing methods? Explain in detail.	07
8. a)	Explain in detail the construction of a three phase induction motor specifying in detail the squirrel cage rotor construction.	07
b)	A three phase induction motor is wound for 4 poles and is supplied from 50 Hz system. Calculate synchronous speed, rotor speed when the slip is 4% and rotor frequency when rotor runs at 600 rpm.	07