

EE 8351 – BASICS OF ELECTRICAL ENGINEERING
(REGULATION – 2012)

29

Time: 3 Hrs.

Max. Marks: 100

Answer ALL Questions

Part - A [10 x 2 = 20]

1. Mention any two advantages of a three phase power supply system.
2. Define power factor of an AC supply. How is it measured?
3. What is the relative direction of currents on the two sides of a coil in a DC generator?
4. Give the torque equation of a DC motor.
5. What is the purpose for shifting the electrical component values of transformers from primary to secondary and vice versa?
6. Define all-day efficiency of a transformer.
7. Compare and contrast the effects of single phase connection vs three phase connection to the stator of an induction motor.
8. What is the use of capacitors in a single phase induction motor construction?
9. Name the types of electrical power tariffs followed by supply companies.
10. What is the principle of operation of repulsion type moving iron instruments?

Part - B [5 x 16 = 80]

11. Explain the voltage, current and power equations of star and delta connected systems with diagrams. [16]
12. a) Explain the armature reaction of a DC generator in detail. What are the various component forces which form the total effect? [16]
- Or
- b) For a lap wound DC shunt motor with supply voltage 230 V, and armature resistance 2 ohms, flux per pole is 2.827 m.Wb. and the total number of conductors are 3000.
 - i) Find that speed when the armature current is 9 amperes [8]
 - ii) Find the armature current when the speed is 1300 rpm for the same supply voltage. [8]
13. a) i) Derive the emf equation of the transformer. [8]
ii) Derive the condition for maximum efficiency in a transformer. [8]
- Or
- b) Derive the equivalent circuit of the transformer with respect to primary and secondary. [16]

14. a] Explain the construction details of a three phase alternator. What are the advantages of having the armature on stator? [16]

Or

- b] i) Explain the starting methods of synchronous condensers. [8]
ii) Draw and explain the phasor diagram of a loaded alternator. [8]

15. a] Explain the components of transmission and distribution systems from source to destination. [16]

Or

- b] Explain in detail about essentials of constructing the indicating instruments. [16]
