

BE Semester- 3 (E.C.) Question Bank

(EC-304 ELECTRICAL TECHNOLOGY)

All questions carry equal marks(10 marks)

Q.1	Differentiate between self-excited and separately excited d.c. machines. Draw the load characteristics of shunt, series and compound generators.
Q.2	Explain three point starter for D.C.Shunt motor.
Q.3	Derive the E.M.F. equation of single phase transformer and explain effect of turns ratio on output voltage
Q.4	An ideal 25 KVA transformer has 500 turns on the primary winding and 40 turns on the secondary winding. The primary is connected to 3000 V,50 Hz supply. Calculate (1) primary and secondary currents on full load (2) secondary e.m.f. (3) maximum core flux
Q.5	Discuss power angle characteristic of an alternator. Also discuss its operation at constant load with variable excitation.
Q.6	State the type of three phase induction motor. Explain how rotor rotates when three phase induction motor is connected across three phase supply & Define Slip
Q.7	Explain “cogging” and “crawling” in a 3-phase induction motor with their remedies.
Q.8	Why single-phase induction motor is not selfstarting? Explain any one method to make it self-starting.
Q.9	Explain the difference between cylindrical and salient pole rotors used in large alternator .
Q.10	Define (1) pitch factor (2) Distribution factor (3) form factor.
Q.11	Define Voltage regulation of alternator. State various methods to find voltage regulation and Explain any one method in detail.
Q.12	Discuss power angle characteristic of an alternator. Also discuss its operation at constant load with variable excitation
Q.13	Explain synchronization of alternators. Which conditions must be satisfied for proper synchronization of 3-phase alternators?
Q.14	<u>List out various types of circuit breaker & explain any one in detail</u>
Q.15	<u>Give the comparison between over head & underground power transmission</u>
Q.16	<u>Explain over load relay</u>
Q.17	<u>Write a short note on capacitor start & capacitor run induction motor</u>
Q.18	<u>Write a short note on shaded pole induction motor</u>
Q.19	Write advantages and applications of auto transformer
Q.20	Explain the phenomena of armature reaction of a DC machine. State its remedies.

Q.21	What is slip of a 3-phase induction motor? Discuss its slip- torque characteristics.
Q.22	Write and explain the conditions of parallel operation of 3-phase transformer.
Q.23	Draw and explain the equivalent circuit of single phase transformer
Q.24	Explain how the torque is developed in a 3-phase induction motor. Derive the equation of torque under running condition.
Q.25	Write different starters used for 3 phase induction motor and explain any one of them.
Q.26	Explain the various losses taking place in a transformer & Derive the equation for its maximum efficiency. Also define All Day Efficiency.
Q.27	Explain construction and working principle of d.c machine.
Q.28	Draw and explain the internal & external characteristics of d.c. shunt generators
Q.29	Explain the term 'Back emf' in respect to d.c.motor.
Q.30	What do you mean of hunting in Synchronous Machine
Q.31	Derive equation of emf for an alternator
Q.32	<u>Explain the speed versus torque & torque versus armature current characteristics for d.c.shunt motor</u>
Q.33	<u>Explain the speed versus torque & torque versus armature current characteristics for d.c.series motor</u>
Q.34	<u>Explain the synchronous impedance method to find voltage regulation for alternater</u>
Q.35	<u>Draw & explain the vector diagram of alternator at lagging power factor</u>
Q.36	<u>Draw & explain the lay out of distribution substation</u>
Q.37	<u>Draw & explain the lay out of thermal power plant</u>
Q.38	<u>Draw & explain the lay out of Hydro power plant</u>
Q.39	<u>Draw & explain the lay out of nuclear power plant</u>
Q.40	<u>Explain the selection criteria for site of hydro power station</u>