

Major Exam ; Time 120mts . F.M. 120

Answer all QuestionsQ1

- (4+6) (a) Give one application each of the following equipments and explain the nameplate rating of any two of these
 (i) Generator (ii) transformer (iii) distributor (iv) motor
 (4+6) (b) Identify four main equipments located at a sub-station and explain the working of any two of them.

Q2

- (15) (a) The armature and shunt field resistance of a 500V shunt motor are 0.2 ohm and 100 ohm, respectively. Find the resistance of the shunt field regulator to increase the speed from 800 rpm to 1000 rpm, if the current drawn by the motor is 450 Amp. Assume the magnetization characteristics to be linear.
 (15) (b) A 3-ph, 12 Pole alternator is coupled to an engine running at 500 rpm. The alternator supplies an induction motor which has a full-load speed of 1455 rpm. Find the slip and the number of poles of the motor.

Q3

- (15) (a) A 440V, 50 Hz, 3 Phase load draws 18 A at a lagging p.f. of 0.8. A synchronous motor is used to raise the p.f. to unity. Calculate the KVA input to the motor, when driving a mechanical load of 6 kW. The motor has an efficiency of 88.0 %
 (2x10) (b) Compare the following : (attempt any two)
 (i) syn and Induction Motors (ii) Distributor and Feeder
 (iii) Conventional and renewable energy sources (iv) Incandescent lamp and CFL

Q4

- (2x5) (10) (a) Identify two main problems that confront the growth of power system in India
 (b) suggest steps to cut down the energy bill of ITD

Q5 Highlight the importance of any two of the following:

- (2x7.5) (a) Energy Conservation (b) Electric Safety
 (c) Efficient lighting system
 (d) circuit breakers. (e) Energy - Audit.