

Question Bank on Unit III (Electrical Motors)

Subject: Principles of Electrical and Electronics Engineering (EEE112)

Q.No.	Questions	Mapped to CO's	Bloom's Level of Learning
1.	Explain the construction of the dc motor with the help of a neat diagram.	CO3, CO6	K2
2.	Explain the significance of the commutator and brush in a dc machine.	CO3, CO6	K2
3.	Explain the principle of operation of dc motor. Also derive its torque equation.	CO3, CO6	K2
4.	Draw and explain the torque-speed characteristics of dc shunt motor. Based on their characteristics, enlist its applications.	CO3, CO6	K4
5.	Draw and explain the torque-speed characteristics of dc series motor. Based on their characteristics, enlist its applications.	CO3, CO6	K4
6.	A 25 kW, 250 V dc shunt motor has armature and field resistances of 0.06 ohm and 100 ohm respectively. Determine the total armature power developed. ($P_a = 23.8$ kW)	CO3, CO6	K5
7.	A 250 V dc shunt motor takes 30 A current while running at full load. The resistance of the motor armature and field winding are 0.1 ohm and 100 ohm respectively. Determine the back emf generated in the motor when it runs on full load ($E_b = 247.125$ V)	CO3, CO6	K5

8.	Explain the principle of operation of 3 phase induction motor. Also explain wound type rotor of induction motor with the help of a neat diagram.	CO3, CO6	K4
9.	Differentiate between squirrel cage and wound rotor induction motor.	CO3, CO6	K3
10.	Draw and explain the torque slip characteristics of three phase induction motor. Mark the starting torque and maximum torque on the diagram.	CO3, CO6	K4
11.	A four pole 50 Hz induction motor runs at 1460 rpm. Determine its percentage slip ($s=2.67\%$)	CO3, CO6	K2
12.	Describe the construction and principle of operation of single-phase induction motor. Why are single phase induction motor not self starting?	CO3, CO6	K3
13.	Explain the operation of split phase type single phase induction motor. Also discuss its applications.	CO3, CO6	K4
14.	Why are single phase induction motor not self starting?	CO3, CO6	K4
15.	Explain the capacitor start induction motors and capacitor start capacitor run induction motors with the help of neat diagrams.	CO3, CO6	K2
16.	In a three phase, slip ring, four pole induction motor, the rotor frequency is 2 Hz when connected to a 400 V, 3 phase, 50 Hz supply. Determine the motor speed in rpm. ($N_r=1440$ rpm)	CO3, CO6	K4
17.	Explain shaded pole type of single-phase induction motor.	CO3, CO6	K2
18.	A 6 pole Induction motor is fed from 50 Hz supply. If the frequency of rotor emf at full load is 2 Hz, determine full load speed and slip. ($N_r= 960$ rpm $s=0.04$)	CO3, CO6	K5
19.	A 3 phase 50 Hz induction motor has 6 poles and operates at 4% slip. Determine (a) Frequency of rotor current	CO3, CO6	K5

	<p>(b) Speed of rotor magnetic field with respect to rotor</p> <p>(c) Speed of rotor magnetic field with respect to stator</p> <p>(d) Speed of rotor magnetic field with respect to stator magnetic field.</p>		
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