

Electric Machines & Drives

Homework #8 Answers: Chapter 22 & Chapter 23

Due: 11/28/11

Chapter 22 of text book - Questions

- 22-1: Motor in Quadrants 1 & 3, Generator in Quadrants 2 & 4
22-2: Quadrant 3, speed and torque same direction – torque clockwise
22-3: 91hz
22-4: a. 626V b. 169kw c. 90A d. 220HP
22-8: a. 200V b. 283V e. 2A
22-11: a. 343A b. 146°
22-12: a. 300V b. 315V
22-15: a. 100.7° b. 87.3°
22-24: 98A, 24V

Chapter 23 of text book - Questions.

- 23-3: 230V, 30hz
23-4: a. 1620 RPM b. 8.78 N*m
23-12: a. 8 N*m, 1080 RPM, 1.2 HP b. 3.5 N*m, 720RPM, 0.35HP
23-13: a. 16.5HP b. 39.5° c. 12.4kvar
23-25: a. 25.8 N*m, 6.4 N*m b. 21.7W

Note:

For Problem 23-25 (b) use relationship of 3.5 watts per amp for 3 phase solid state start losses