M18002058

Registration No: | | | | | | | | | | |

Total Number of Pages : 02 **M.TECH**

M.TECH 2ND SEMESTER REGULAR EXAMINATIONS, MAY 2018
ADVANCED ELECTRIC DRIVES
Branch: PE, Subject Code:MPEPC2020
Time: 3 Hours
Max Marks : 70

PART-A (10 X 2=20 MARKS)

1. Answer the following questions.

a. a. Define what is Stiction. (CO 1)
b. What is load equalization and how it can be overcome. (CO 2)
c. Write different components of friction torque with curves. (CO 1)
d. Write different methods of speed control for dc motor. (CO 5)
e. Why V/F ratio should kept constant in frequency control of IM drive. (CO 3)
f. Which chopper is used for both motoring and braking of DC motor? (CO 4)
g. What are different types electric braking. (CO 3)
h. Draw the speed torque curve of separately excited DC motor. (CO 2)
i. What are the drawbacks of rotor resistance control method? (CO 3)
j. Define transient time for electric drive. (CO 2)

PART-B (5 X 10=50 MARKS)

Answer any five questions from the following.

2.
a) Explain multi-quadrant operation of electrical drive. [5] (CO 1)
b) Derive equivalent values of drive parameters for loads with rotational motion. [5] (CO 2)

3.
a) A drive has given parameters J=10kg-m^2 ,T=100-0.1N N-m, Passive load torque T_l =0.05N N-m, where N is the speed in rpm .Initially the drive is operating in steady-state, Now it is to be reversed. For this motor characteristic is changed to T= -100-0.1N N-m, Calculate the time of reversal. [5] (CO 2)
b) Explain Static Scherbius Drive with neat diagram. [5] (CO 3)

4.
a) State and explain steady state stability of electrical drive. [5] (CO 2)
b) Draw the block diagram of drives and explain details about power modulators. [5] (CO 1)

5.
a) Explain synchronous motor variable speed drives. [5] (CO 5)
b) Explain single phase fully controlled rectifier control separately excited dc drives. [5] (CO 4)

6.

a) Discuss about current regulated voltage source inverter control. [5](CO 5)
b) How the power factor can be improved discuss. [5](CO 6)

7.

a) Explain stator voltage control method for induction motors. [5] (CO 6)
b) Explain slip power recovery and write different methods of it. [5] (CO 6)

8. Answer the following

a) Cyclo-converters in drives [5] (CO 6)
b) Regenerative braking in DC motor [5] (CO 2)

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