Roll No.:.....

National Institute of Technology Delhi

Name of the Examination: B.Tech.

Branch	**: Electrical Engineering.**	**Semester**	**:7th**
Title of the Course	**:Electrical Drives**	**Course Code**	**: EEB 401**
Time: 1.5 Hours		**Maximum Marks: 25**	

Note : 1. Answer all the questions.

2. Each question carries 5 marks.

4. Do not write anything on the question paper except Roll number

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1. **State essential parts of Electrical Drives. What are the functions of a each part explain clearly.**

2. **Explain the concept of Constant power drive and Constant Torque drive ?**

3. **A drive has following parameters: J= 10 kg-m^2, T=15+0.05N, N-m and T_l = 5+0.06N, N-m; where N is the speed in rpm .**

Initially the drive is working in steady-state. Now the drive is braked by electrical braking. Torque of the motor in braking is given by T= -10-0.04N, N-m. Calculate time taken by the drive to stop.

4. **Explain Speed-Torque conventions and multiquadrant operation drive with suitable example.**

5. **A motor drives two loads. One has rotational motion. It is coupled to the motor through a reduction gear with a= 0.1 and efficiency of 90% . The load has a moment of inertia of 10kg-m^2 and a torque of 10N-m .Other load has translational motion and consists of 1000kg weight to be lifted up at an uniform speed of 1.5 m/s. Coupling between this load and the motor has an efficiency of 85%. Motor has inertia of 0.2kg-m^2 and runs at a constant speed of 1420rpm. Determine equivalent inertia referred to the motor shaft and power developed by the motor.**