

**GOVT. COLLEGE OF ENGINEERING KANNUR.**

**Department of Electronics and Communication Engineering**

**Course code: ECT307**

**Course Name: CONTROL SYSTEMS**

Max. Marks: 15

**Assignment 1**

*(Answer all questions. Each question carries 5 marks)*

**Module1**

1. Fig 1. Shows a motor-load system coupled through a gear ratio  $n = N_1/N_2$ . The motor torque is  $T_m(t)$ , and  $T_L(t)$  represents a load torque. Find the optimum gear ratio  $n^*$  such that the load acceleration  $\alpha_L = d^2\theta_L/dt^2$  is maximized. [CO1]

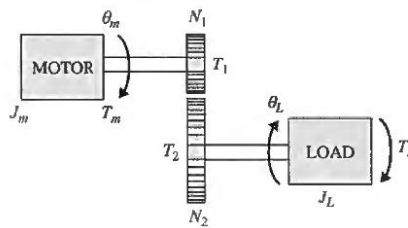


Fig. 1

**Module 2**

1. Explain the correlation between time and frequency responses of control systems.[CO2]

**Module 3**

1. Compare PI, PD, and PID controllers. [CO3]

[Note: for Module 1 question, refer the text book “Farid Golnaraghi, Benjamin C. Kuo, Automatic Control Systems, 9/e, Wiley India.” ]