

## SNS COLLEGE OF ENGINEERING

Kurumbapalayam (Po), Coimbatore - 641 107

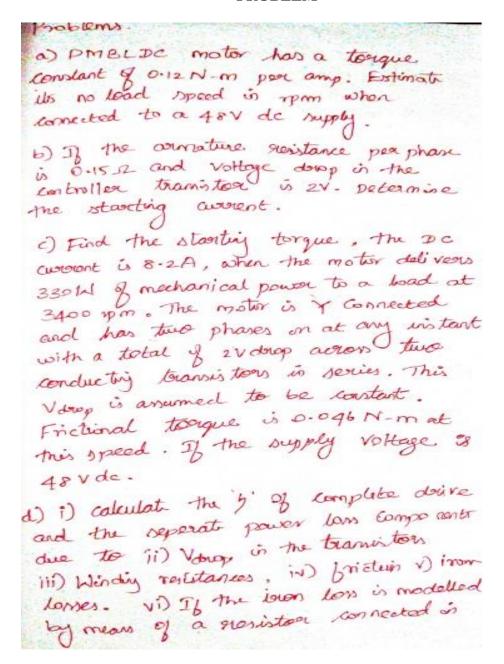


## AN AUTONOMOUS INSTITUTION

Approved by AICTE, New Delhi and Affiliated to Anna University, Chennai

## DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

## POWER SYSTEM ANALYSIS UNIT – I PERMANENT MAGNET PMBLDC MOTOR PROBLEM



possable with each phan of the motor, of Revisted connected in parallel with each phase of the motor. Determine the value of the Resistance. SOLUTION: a) No load speed in spm. who = V 1cm = 0-12 Nm /A V = 48 V No = 3519 rpm b) starting wowent  $I_{5t} = \frac{V - V dowp}{2 Rph}$ Rph = 0.15\_2 Volop = 2V Ist = 48-2 = 153.3 A c) startaj Torque Tst = 1cm Ist = 0.12 × 153.3 N-m = 18.4 N-m

- e) Device loss
  - (ii) Power loss in tramitions = Vola I = 2 × 8.2 = 16.4 W.
  - (iii) Law in the winding resistance cu bons = I2 (2 Rph) =(8.2)2(2×0.15) = 20-17 W
  - (iv) Friction Lan Pf = 271NTf = 2T × 3400 × 0.046
    - = 16-37W
  - (v) Iron lon = Injust power (output pour + cu loss + loss is device + friction
  - = 393.6 (330 + 20-17W+ 16.4+ (6.37) = 10.65 W = 10.65 = 5-33 W 2 widing

vi) Inon lon =  $\frac{V^2}{r}$  phan of amaly wir any prime  $V^2$  voltage across  $V^2$   $V^2$  V