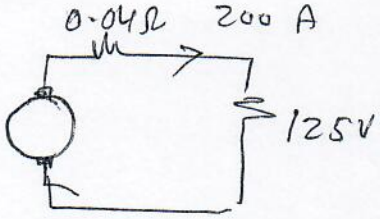
AL-IMAM MOHAMMAD IBN SAUD
ISLAMIC UNIVERSITY
ELECTRIC DRIVES
QUIZ3– SEMESTER 2, 1437/1438

COLLEGE OF ENGINEERING
Electrical Engineering Dept.
Time allowed 15 min.

Quiz Score: /5	إسم الطالب Model Answer

A separately excited generator, when running at 1000 rpm supplied 200A at 125V(terminal voltage). What will be the load current when the speed drops to 800 rpm if I_f (field current) is unchanged? Given that the armature resistance = 0.04 Ω.



$$\frac{E_{a1}}{E_{a2}} = \frac{1000}{800} = \frac{5}{4} \quad [1]$$

$$R_L = \frac{125}{200} = 0.625\ \Omega \quad [1]$$

$$E_{a1} = 200(0.625 + 0.04) = 133V \quad [1]$$

$$E_{a2} = 106.4\ V \quad [1]$$

$$I_L = \frac{106.4}{0.665} = 160\ A \quad [1]$$