COLLEGE OF ENGINEERING & TECHNOLOGY

Department : **Electrical & Control Engineering**
Lecturer : **Dr. Ahmed Kadry Abdelsalam**
Course : **Electrical Drives 1**
Course Code : **EE 424** **Marks** : **40**
Date : **4/6/2015** **Time** : **2 hour**

Final Exam

Answer all the following questions

Q1 [10 marks] (B4)

Discuss aided with diagrams the counter-current braking of induction motors. Explain the theory of operation, performance curves, utilized power electronic converter and the possible operating points under unidirectional and bidirectional loads.

Q2 [10 marks] (A29)

a) Discuss aided with diagrams the TVR braking of series DC motors illustrating the utilized power electronic based hardware, T-N characteristics for unidirectional and bidirectional loads.

b) A DC separately excited motor has armature resistance of 0.5Ω and field constant $k\emptyset$ equal 3V.Sec. While the machine was running as motor, before braking process starts, the DC link voltage was 200V. The motor was driving a forklift of 180N.m, constant and unidirectional. A TVR braking is applied by switching the terminal voltage polarity and decreasing its value to be 30V. Calculate the steady-state speed and armature current at the new state.

Members of course Examination Committee:	Signature:	Date:
Lecturer:	Dr. Ahmed Kadry	19/5/2015
Course Coordinator :	Dr. Ahmed Kadry	19/5/2015
Head of Department:	Prof. Hamdy Ashoor	19/5/2015

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