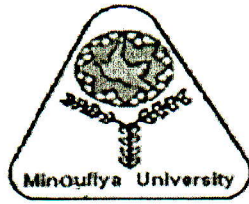


Menoufia University
Faculty of Engineering
Dept. of Electrical Engineering.
Date: 31 /5/2017
Total Marks: 100



Final Term Exam
Academic Year: 2016-2017
Post graduate Students (MSC)
Allowed Time: 3 Hours

Subject/Code: **Power Electronics Systems / ELE 610**

This exam measures ILO's no. (A1, A3, A5, B1, B2, B3, C3, C4)

Remarks: No. of pages: 1 No. of questions: 4

Allowed Tables and Charts: (None)

Answer All The Following Questions:

Question 1

[25 Mark]

- 1- Mention the aggregated models for the Wind Farms?
- 2- Draw the aggregated models scheme in The Wind Farms for the following techniques: FAW_EWS, SAM, MSFAM.
- 3- Mention the types of the aggregated models control in the Wind Farms?
- 4- Explain the advantages and disadvantages of the FLC?

Question 2

[25 Mark]

- 1- Explain different types of passive power factor correction (PFC)? list advantages and disadvantages of passive power factor correction?
- 2- Compare between Buck converter based, Boost converter based and Buck- Boost converter based in high frequency active PFC?
- 3- Describe the block diagram of the fuzzy logic control technique?
- 4- Discuss the influence of increasing/decreasing the number of memberships?

Question 3

[25 Mark]

- 1- Draw the block diagram of 3-phase PWM rectifier with voltage oriented control (VOC) and discuss briefly the function of each block?
- 2- Discuss briefly the advantages and disadvantages of VOC over DPC?
- 3- Discuss how the rectifier with VOC can be connected to the Grid?

Question 4

[25 Mark]

- 1- Define the power quality? then explain power quality problems, causes and effects of every problem?
- 2- Define active power filter? Mention mainly two types? then mention advantages and disadvantages of active power filter?
- 3- Explain converter based classification and Topology based classification of active power filter?

With best wishes
Prof. Elwy E. El-kholy