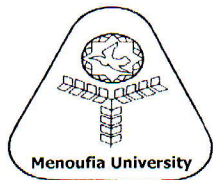


Menoufiya University
Faculty of Engineering
Shebin El-Kom
Second Semester Exam.
Academic Year: 2015-2016



Department: Basic Science of Engineering
Year: diploma
Subject/Code: **Solar Cell Materials** (BSE525)
Time Allowed: **3 hours**
Date: **4/6/2016**

Answer only 9 Questions of the Following: (100 marks)

- 1) According to Band theory: Compare between conductors, semiconductors and insulators.
- 2) Define: Pauli-principle, Drift current and Diffusion current
- 3) Explain with drawing the effect of temperature on Fermi-dirac distribution?
- 4) Write short note on the generation of charge carrier by the absorption of light.
- 5) Give a schematic diagram for the various types of solar cell technologies and current trends of development. Give a short note for each of them.
- 6) Give a schematic diagram for the photocatalytic activity of titania.
- 7) Describe and explain the effect of different crystal forms of titania on the photocatalytic efficiency.
- 8) Describe and explain the electrical properties and energy levels of crystalline solids.
- 9) Describe and explain semiconductors and doping
- 10) Describe and explain the crystalline structure and the energy Band Diagram for Semiconductors.

With my best wishes

Dr. Nasr Eldin Mahmoud