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