Physics-306
Homework Set (5)

This set is due by Tuesday 16th of Rajab, 1436 (5th of May, 2015) at 10.00 p.m. (*).

In *all homeworks*, please solve *fully* and *clearly*, *state assumptions*, and *comment* wisely (when applicable).

Please circle your final answer.

Feel free to study from books, and discuss with your instructor, or discuss with colleagues.

I wish you well, wa assalam alaikum!!

Zain Yamani
Phys-306 Instructor

(*) slip it under my Office door, in 15-3100

Question-1:
   a- In a few sentences, explain what a gauge transformation are, in classical electromagnetic theory.
   b- Mathematically demonstrate how the Lorentz gauge leads to four-dimensional versions of the Poisson's equation.
   c- State the solution to the scalar and vector potential of electrodynamics when there are time varying sources (charge and current distributions). [you do not need to prove anything; just state]

Question-2: Griffith Problem 10.9-a.

Question-3: Griffith Problem 10.13.

Question-4: Griffith Problem 10.18.