Physics 241
Problem Set 5
(Due 13/5/1432 H)

Name:
Number:

1. An electron, which has a mass of 9.11×10^{-31} kg, moves with a speed of $0.75c$. Find its relativistic momentum and compare this value with the momentum calculated from the classical expression.

2. A particle has a kinetic energy of 62 MeV and a momentum of 333 MeV/c. Find its mass (in MeV/c^2) .

3. Light of wavelength $\lambda = 5893$ Å is incident on a potassium surface. The stopping potential for the emitted electrons is 0.36 volt. Calculate the maximum energy of the photoelectron, the work function, and the threshold frequency.

4. A photon of green light has a wavelength of 520 nm. Find the photon's frequency, magnitude of momentum, and energy. Express the energy in both joules and electron volts?

5. Write a 500 word essay on the topic of general theory of relativity. For this assignment please e-mail your essay to raltuwirqi@kau.edu.sa . You can write the essay in Arabic or English.

   Resources on how to write an essay can be found from the below links:
   http://lklivingston.tripod.com/essay/
   http://www2.actden.com/writ_den/tips/essay/
   http://kimberlychapman.com/essay/essay.html
   http://www1.aucegypt.edu/academic/writers/