

**PHYSICS 505/551**  
**3rd HOMEWORK**  
**Dr. V. Lempesis**

**Hand in: Saturday 2nd November 2013**

1. Construct the states of definite total spin for two particles that have spin  $s = 1/2$ .
2. Prove the relation 9 in the solution of problem 6 in Handout 4.
3. Prove the relation 14 in the solution of problem 6 in Handout 4.
4. For the problem 6 in Handout 4 calculate the Clebsch-Gordan coefficient  $\langle j_1 = 1, m_1 = 0, j_2 = 1, m_2 = 0 | J = 2, M = 0 \rangle$ .

**Please send your answers in pdf form (typed or in clearly handwritten form) in my email address (vlempesis@ksu.edu.sa). Do not forget to put your name and your ID number on it. Also define if you are in phys 505 or phys 551 course.**