Medical Physics 710 / BME 710 **Due: Oct. 30th, 2018**

Journal Discussion 6, Quiz #4: **GH Glover and E Schneider.,** MRM 1991, **Three-Point Dixon Technique for True Water / Fat Decomposition with B0 Inhomogeneity Correction**

Name:

Due: October 30th at beginning of class. Please turn in by hand, email, or submission to Learn@UW.

Question 1 (2.5 points)

1. What is the disadvantage of two-point Dixon that can be resolved by three-point Dixon?

a) Loss of SNR
b) Only Magnitude images can be used
c) Objects having more than two spectral components cannot be separated
d) When field inhomogeneities are present, two-point Dixon cannot separate the phase shifts.

Question 2 (2.5 points)

2. Which of the following effects will cause field inhomogeneity?

a) Gross shim misadjustment
b) Morphologically generated demagnetization effects
c) Susceptibility differences
d) All of the above

Question 3 (2.5 points)

3. Which of the following statements is NOT true?

a) If the water component is placed on-resonance, then p1 is the water image

b) If the resonance offset is less than half of the chemical shift, the water and fat images remain in the correct order.

c) If the resonance offset is greater than half of the chemical shift, the water and fat image assignment is reversed; i.e., p1 is the fat image and p2 is the water image

d) Intermixing of components will happen within in an image after the decomposition procedure.

Question 4 (2.5 points)

If the sign $p=\pm 1$ in Eqn. 9 is falsely calculated in some areas, what will happen in the two separate images?