PHYS 360: Quantum Mechanics NAME:_____

Reading Quiz

Date 10/13/8

Reading: Griffiths, pages 93-114

1) **Given $\hat{Q}$ is hermitian**, which of the following statements are true? (Circle **one** of the multiple choices a) through e)).

i) $\hat{Q}$ could represent an observable
ii) Eigenfunctions of $\hat{Q}$ are determinate states
iii) Eigenvalues of $\hat{Q}$ are real
iv) Eigenfunctions of $\hat{Q}$ are complete
v) Any other hermitian operator must commute with $\hat{Q}$

a) i) only
b) i) and ii) only
c) i) and ii) and iii) only
d) i) and ii) and iii) and iv) only
e) all of the statements are true

2) Work out and circle the correct answer

$$\langle(\hat{A} - \langle A\rangle)\Psi|(\hat{B} - \langle B\rangle)\Psi\rangle =$$

a) $\langle\hat{B}\hat{A}\rangle - \langle A\rangle\langle B\rangle$
b) $\langle\hat{B}\hat{A}\rangle - \langle AB\rangle$
c) $\langle\hat{A}\hat{B}\rangle - \langle B\rangle\langle A\rangle$
d) $\langle\hat{A}\hat{B}\rangle + \langle A\rangle\langle B\rangle$
e) none of the above