

1.7 An electron can be in one of two potential wells that are so close that it can “tunnel” from one to the other. Its state vector can be written

$$|\psi\rangle = a|A\rangle + b|B\rangle, \quad (1.1)$$

where $|A\rangle$ is the state of being in the first well and $|B\rangle$ is the state of being in the second well and all kets are correctly normalised. What is the probability of finding the particle in the first well given that: (a) $a = i/2$; (b) $b = e^{i\pi}$; (c) $b = \frac{1}{3} + i/\sqrt{2}$?