3.59   From the table, α-iron has a BCC crystal structure and an atomic radius of 0.1241 nm.   Using Equation 3.3 the lattice parameter, a, may be computed as follows:

$$a = \frac{4R}{\sqrt{3}} = \frac{(4)(0.1241 \text{ nm})}{\sqrt{3}} = 0.2866 \text{ nm}$$

Now, the d_{111} interplanar spacing may be determined using Equation 3.14 as

$$d_{111} = \frac{a}{\sqrt{(1)^2 + (1)^2 + (1)^2}} = \frac{0.2866 \text{ nm}}{\sqrt{3}} = 0.1655 \text{ nm}$$

And, similarly for d_{211}

$$d_{211} = \frac{a}{\sqrt{(2)^2 + (1)^2 + (1)^2}} = \frac{0.2866 \text{ nm}}{\sqrt{6}} = 0.1170 \text{ nm}$$