

## Chapter 14 — Practice FRQ 2

Michael Brodskiy

Instructor: Mr. Morgan

March 12, 2020

1. (d) i.

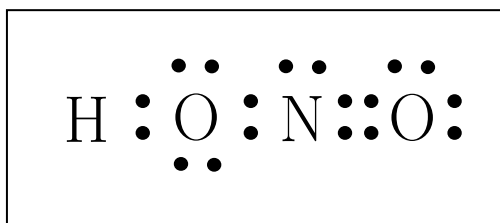


Figure 1:  $\text{HNO}_2$  Lewis Dot Diagram

- ii. Because there are four electron pairs, it must share  $\text{sp}^3$  hybridization
- (e) i.

$$\begin{aligned} .02 \cdot .1 &= .002[\text{mol}] \\ \frac{.002}{.1} &= .02[\text{M}_{\text{HNO}_2}] \end{aligned} \tag{1}$$

- ii.

$$\begin{aligned} pK_a &\approx \text{pH at } 10[\text{mL}] \\ pK_a &\approx 3.2 \end{aligned} \tag{2}$$

- (f) There is a higher concentration of  $\text{NO}_2^-$  at this point. This is because, past 10[mL] of KOH added, the concentration of  $\text{NO}_2^-$  is greater.