

# CHEM-118-03 Final Exam Key

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## Fall 2024

1. E) all of the above
2. B) 0.79 g/mL
3. A) 9.02 feet
4. C) 25 °C
5. A) 0.5 g
6. D) 5
7. E) Indeterminate
8. C) 20.1
9. D) 13.6
10. D) 12°C
11. A) Physical change
12. B) Chemical change
13. D) 36.0 g
14. A)  $\text{Al}^{3+}$
15. A)  $\text{N}^{3-}$
16. A) Ca
17. A)  ${}^{56}_{26}\text{Fe}$
18. A)  ${}^{40}_{18}\text{Ar}$
19. A) Ca: 3, P: 2, O: 8
20. A) Dinitrogen pentoxide
21. A) Calcium nitrate
22. A) 150 grams
23. A) 4.556 mol
24. A) 0.131 moles
- 25.

$$2 \text{ Al } \left( 44.01 \frac{\text{g}}{\text{mol}} \right) + 3 \text{ S } \left( 32.06 \frac{\text{g}}{\text{mol}} \right) + 12 \text{ O } \left( 16.00 \frac{\text{g}}{\text{mol}} \right) = 88.02 \frac{\text{g}}{\text{mol}} + 96.18 \frac{\text{g}}{\text{mol}} + 192 \frac{\text{g}}{\text{mol}}$$
$$= 342.15 \frac{\text{g}}{\text{mol}}$$

$$\frac{96.18 \frac{\text{g}}{\text{mol}}}{342.15 \frac{\text{g}}{\text{mol}}} \times 100\% = 28.11\%$$

