

Final Exam Sample. These random questions may, or may not be on the final exam. Please consider the essential truths in each one.

Multiple Choice

Identify the choice that best completes the statement or answers the question.

- _____ 1) In general, for a gas at a constant volume, _____.
Ⓐ the pressure of the gas is inversely proportional to its temperature in kelvins
Ⓑ the volume of the gas is inversely proportional to its temperature in kelvins
Ⓒ the volume of the gas is directly proportional to its temperature in kelvins
Ⓓ the pressure of the gas is directly proportional to its temperature in kelvins
- _____ 2) How does the surface tension of water compare with the surface tensions of most other liquids?
Ⓐ It is lower.
Ⓑ It is about the same.
Ⓒ It is higher.
Ⓓ It is higher when a surfactant is added.
- _____ 3) What is the maximum amount of KCl that can dissolve in 200 g of water?
(The solubility of KCl is 34 g/100 g H₂O at 20°C.)
Ⓐ 17 g
Ⓑ 34 g
Ⓒ 68 g
Ⓓ 6800 g
- _____ 4) What is the molality of a solution of water and KCl if the freezing point of the solution is -3°C? ($K_f = 1.86^\circ\text{C}/m$; molar mass of water = 18 g)
Ⓐ 0.6m
Ⓑ 1.2m
Ⓒ 0.8m
Ⓓ 6m
- _____ 5) What is the specific heat of a substance if 1560 cal are required to raise the temperature of a 312-g sample by 15°C?
Ⓐ $0.033 \frac{\text{cal}}{\text{g}^\circ\text{C}}$
Ⓑ $0.33 \frac{\text{cal}}{\text{g}^\circ\text{C}}$
Ⓒ $0.99 \frac{\text{cal}}{\text{g}^\circ\text{C}}$
Ⓓ $1.33 \frac{\text{cal}}{\text{g}^\circ\text{C}}$
- _____ 6) Which of the following is a valid unit for specific heat?
Ⓐ $\frac{\text{cal}}{\text{g}^\circ\text{C}}$
Ⓑ cal
Ⓒ $\frac{\text{cal}}{\text{g}}$
Ⓓ °C

