

Name: \_\_\_\_\_

## Gizmo Lab: Calorimetry Lab – Alternate Assignment

1. Which of the following substances could be heated from 20°C to 100°C most quickly? Assume identical heat sources are used on all substances.

Substance	Specific Heat (J/ g °C)
gold	0.1291
platinum	0.1326
silver	0.2350
tin	0.2274

- A. gold
- B. platinum
- C. silver
- D. tin

2. A chemist mixes 500 g of lead at 500°C with 1,200 g of water at 20°C. She then mixes 500 g of copper at 500°C with 1,200 g of water at 20°C. The specific heat capacity of lead is 0.1276 J/g°C and the specific heat capacity of copper is 0.3845 J/g°C. What will be true about the final temperatures of the two systems?

- A. The final temperature of the lead-water system will be equal to the final temperature of the copper-water system.
- B. The final temperature of the lead-water system will be higher than the final temperature of the copper-water system.
- C. The final temperature of the lead-water system will be lower than the final temperature of the copper-water system.
- D. Cannot be determined from the given information.

3. A blacksmith heats a 1,540 g iron horseshoe to a temperature of 1445°C before dropping it into 4,280 g of water at 23.1°C. If the specific heat of iron is 0.4494 J/ g °C, and the water absorbs 947,000 J of energy from the horseshoe, what is the final temperature of the horseshoe-water system after mixing?

- A. 734°C
- B. 298°C
- C. 76.7°C
- D. 29.8°C

4. A chemist mixes 75.0 g of an unknown substance at 96.5°C with 1,150 g of water at 25.0°C. If the final temperature of the system is 37.1°C, what is the specific heat capacity of the substance? Use 4.184 J/ g °C for the specific heat capacity of water.

- A. 368 J/ g °C
- B. 13.1 J/ g °C
- C. 0.368 J/ g °C
- D. 0.0112 J/ g °C