

## Nine Sample Format Variations for Multiple-Choice Questions:

Multiple-choice questions can take a variety of formats that challenge different cognitive processes. Including a mix of these formats on any exam is good pedagogical practice.

1. Who invented the first workable light bulb?
  - a. Benjamin Franklin
  - b. Thomas Edison
  - c. Heinrich Hertz
  - d. Albert Einstein
2. Topic: Projectiles. Select the true statement
  - a. One of the many possible trajectories is a helix.
  - b. The range in air is greater than in a vacuum.
  - c. Falling bodies are categorized as projectiles.
  - d. Maximum impact speed always exceeds launch speed.
3. Which of the following is an impossible scenario?
  - a. accelerating while at constant speed
  - b. having an instantaneous speed of zero
  - c. covering a distance with an average speed greater than your final speed
  - d. moving in a circular path with constant velocity
4. What is the connection that relates *entropy* and *phase*?
  - a. Higher energy phases, such as a gas, are more disordered.
  - b. As entropy increases so does phase.
  - c. There are 4 levels of entropy matching each phase.
  - d. There is no connection.
5. The ? region lies between the planets Mars and Jupiter.
  - a. Oort cloud
  - b. plasma
  - c. galactic
  - d. asteroid
6. How did the start of the Industrial Revolution depend on the science of "thermodynamics"?
  - a. Chemical fuels were still new and being slowly refined.
  - b. There was an immediate need to keep storage areas very cold.
  - c. Greater efficiency steam engines ultimately meant more profit.
  - d. Home heating systems were mainly external combustion engines.
7. Select the term that does not belong with the others:
  - a. chain
  - b. pulley
  - c. inclined plane
  - d. lever
8. What is the speed of a bullet that moves 1 mile in 5 seconds?
  - a. 0.2 mi/s
  - b. 1 mi/s
  - c. 5 m/s
  - d. none of the above
9. Select the correct *cause and effect* pair:
  - a. force → acceleration
  - b. friction → motion
  - c. mass → distance
  - d. speed → inertia