

## PH501 Lecture 2 — Short Quiz

### Q1.

In which frame is the target nucleus initially at rest?

- (a) CM frame (b) LAB frame  
(c) Both (d) Neither

Answer: \_\_\_\_\_

### Q2.

Why is  $T_{cm}$  called the available energy?

- (a) It can excite the nucleus or create new particles (b) It is measured by the detector  
(c) It is always equal to the beam energy (d) It is independent of mass

Answer: \_\_\_\_\_

### Q3.

Why does the proton energy depend on the detector angle?

- (a) Q-value changes with angle (b) Momentum is a vector quantity  
(c) Target mass changes (d) Beam energy changes

Answer: \_\_\_\_\_

### Q4.

An excited state of the residual nucleus generally produces:

- (a) Higher proton energy (b) Lower proton energy  
(c) The same proton energy (d) Zero proton energy

Answer: \_\_\_\_\_

### Q5.

What is threshold energy?

- (a) Maximum beam energy (b) Minimum beam energy required for a reaction  
(c) Average beam energy (d) CM energy

Answer: \_\_\_\_\_

### Q6.

For a negative-Q reaction, why is the threshold energy larger than  $|Q|$ ?

- (a) Some beam energy is tied up in CM motion (b) The detector absorbs energy  
(c) The target loses mass (d) Q-value changes

Answer: \_\_\_\_\_