St John Baptist De La Salle Catholic School, Addis Ababa

Grade 10A Physics Final Examination

Summer Term

June, 2023

Name:_____ Section:___ Time Allowed: **25 minutes**

Multiple Choice Questions

1. A ball is thrown at an angle of 50 degrees above the horizontal. Which of the following best describes the acceleration of the ball from the instant after it leaves the thrower's hand until the time it hits the ground?

   A. Always in the same direction as the motion, initially positive and gradually dropping to zero by the time it hits the ground

   B. Initially positive in the upward direction, then zero at maximum height, then negative from there until it hits the ground

   C. Always in the opposite direction as the motion, initially positive and gradually dropping to zero by the time it hits the ground

   D. Always in the downward direction with the same constant value

2. What is the displacement of a ball thrown straight up with an initial velocity of $15.0m/s$? (Assume $g = 9.8m/s^2$)
   A. 6.28m B. 1.1m C. 14m D. 10.4m

3. A basketball referee tosses the ball straight up for the starting tip-off. At what velocity must a basketball player leave the ground to rise 1.25 m above the floor in an attempt to get the ball?
   A. 3.5 m/s B. 2.2 m/s C. 1.3 m/s D. 4.95 m/s

4. You throw a ball straight up with an initial velocity of 15.0 m/s. It passes a tree branch on the way up at a height of 7.00 m. How much additional time will pass before the ball passes the tree branch on the way back down?
   A. 7 s B. 4 s C. 1.91 s D. 9 s

5. What is the velocity of a projectile at the maximum height?
   A. 0 B. v_y C. v_x D. v_i

Workout Problems

6. Discuss what happens to the velocity(*both horizontal and vertical*) of a projectile at maximum height

7. A softball of mass 4 kg is thrown with an initial velocity of 10 m/s at an angle θ to the horizontal. When the ball reaches its maximum height, its kinetic energy is 50 J.

   - At what angle was the ball thrown?

   - What is the maximum height achieved by the ball from its point of release?? What about the power?

   - How long after the ball is thrown will it return to the ground?

   - Calculate the horizontal distance that the ball will travel during its flight.