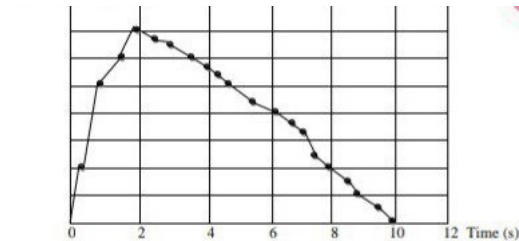# Physics ESSlCE Latex Project

St John Baptist De La Salle Catholic School, Addis Ababa

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1. The graph below illustrates the position and time for a cat that runs to catch a rat and then returns with it. The cat caught the rat after 2 seconds. What was the cat's average speed as it returned with rat?(2008)

   A. Its average return speed was 2m/s.

   B. Its average return speed was 2m/s.

   C. Its average return speed was 0.7m/s.

   D. Its average return speed was 0.9m/s.

2. An airplane flies at speed of 720km/hr at 370 north to west direction. How far does the plane travel to the west in 1 hour?(UEE:2008)
   A. 432 km.   B. 720 km.   C. 560 km.   D. 504 km.

3. An airplane travelled from Addis Abeba to Mekele, 780km, in 45 minutes. what was its average speed?(UEE:2008)
   A. 0.28 m/s.   B. 1040 km/hr.   C. 17.3 m/min.   D. 585 km/hr.

4. An example of a body moving with constant speed but still accelerating is:

   A. A body moving on a straight road.

   B. A body moving on a straight rail way track.

   C. A body moving in a circular path .

   D. A body falling in a viscous fluid.

5. A student moves along the boundary of a square field of side 10m in 40sec. If he started from one of the corners of the square what will be the magnitude of displacement of the student at the end of 2 minutes and 20 second from his intial position?(UEE:2008)
   A. 10 m.   B. $10\sqrt{2}$ m.   C. 40 m.   D. 30 m.

6. A cricketer throws a ball vertically upwards with initial speed of 20m/s. How long is it in the air before it returns to the cricketer's hands?(UEE:2009)
   A. 2 s.   B. 10 s.   C. 1.5 s.   D. 4 s.

7. Two projectiles are fired from ground level at equal speed but different angles. One is fired at angle of 30 degrees and the other at 60 degrees. The projectile to hit the ground first will be the on fired at (neglect air resistance).(UEE:2006)
   A. 60 degrees.   B. 30 degrees.   C. Both hit at the same time.   D. Cannot be determined from the given information.

8. A placekicker must kick a football from a point which is at a distance of 36.0m from the goal. When kicked, the ball leaves the ground with a speed of 20.0m/s at an angle of 53°to the horizontal. If the ball hits the crossbar of the goal at a height h and bounces back what will be the height of the crossbar?(UEE:2006)
A. 2.45 m.   B. 2.85 m.   C. 3.00 m.   D. 3.15 m.

9. A body moving with constant acceleration covers the distance between to point 60m apart in 5s. Its velocity at it passes the second point is 15m/s. What is the acceleration?(UEE:2006)
A. $3m/s^2$.   B. $2.4m/s^2$.   C. $1.8m/s^2$.   D. $1.2m/s^2$.

10. If a long distance athlete leaves the ground at an angle of 37°above the horizontal surface at a speed of 10m/s, how far does he jump in the horizontal direction?(UEE:2007)
A. 4.8 m.   B. 6 m.   C. 9.6 m.   D. 12 m.

11. A woman is rotating a bucket of water in a vertical circle of radius 0.9m, the mass of bucket and water 5kg. What is the bucket's minimum speed at the top of the circle if no water is if no water is to spill out?(UEE:2007).
A. 0.   B. 1 m/s.   C. 3 m/s.   D. 9 m/s.

12. which one of the following statement is correct?(UEE:2007)

    A. An object moving towards the east cannot have acceleration towards west.

    B. If the average velocities of an object zero in some time interval, the average speed of the object for that time interval is also zero.

    C. The velocity-time graph of an object moving with constant acceleration is parallel to the time axis.

    D. An object having zero velocity can have acceleration different from zero.

13. An object moving with uniform acceleration has a velocity of 12m/s in the positive x direction when its x coordinate is 3cm. If its x coordinate 2 sec. Later is -5 cm, what is its acceleration?(UEE:2005).
A. $-12m/s^2$.   B. $-13m/s^2$.   C. $-16m/s^2$.   D. $12m/s^2$.

14. What is the direction to which a fish must push the water with its fins in order to propel eastward?(UEE:2005)
A. eastward.   B. upward.   C. westward.   D. downward.

15. A woman driving a 2000kg car along a level road at 30m/s takes her foot off the gas to see how far her car will roll before it slows to a stop. She discovers that it takes 150m. What is the greatest force of friction acting on the car?(UEE:2005).
A. 9000N.   B. 6000N.   C. 3000N.   D. 400N.

16. The coordinate of a particle in meters is given by $x(t) = 25t - 3t^2$, where the time t is in seconds. At what value t will the particle become momentarily at rest?(UEE:2005)
A. 2.87 s.   B. 1.67 s.   C. 0.6 s.   D. 0.36 s.

17. A force **F** of magnitude 20N is applied to a block of mass 2 kg that lies on a rough, horizontal surface as shown in figure below. The coefficient of kinetic friction between the block and surface is 0.4.What is the magnitude of the acceleration of the block?(UEE:2007)

A. $10m/s^2$.   B. $5.2m/s^2$.   C. $4m/s^2$.   D. $2.8m/s^2$.