1. In the absence of an external force, a moving object will

(A) stop immediately   (B) slow down and eventually come to a stop

(C) move faster and faster   (D) move with constant velocity

(E) move with constant velocity for a while and then slow to a stop

Newton's 1st law: **Correct answer is D**

2. A 2 Kg box sits on a 3Kg box which sits on a 5 Kg box. The 5Kg box rests on a table top. What is the normal force exerted on the 5Kg box by the table top?

(A) 19.6 N   (B) 29.4 N   (C) 49 N   (D) 98 N

As far as the table is concerned it is just as if there was a 2+3+5=10 Kg box resting on it → N = W = mg = 10 * 9.8 N = 98 N   **Correct answer is D**

3. A ball is thrown up into the air. Ignore air resistance. When it is rising and reaches half of its maximum height, the net force acting on it is

(A) equal to its weight.   (B) greater than its weight.

(C) less than its weight, but not zero.   (D) zero

When in flight, the only force is the weight   **Correct answer is A**

4. A box rests on an inclined surface. If the inclination of the surface is made steeper, what does the normal force on the box do?

(A) increases   (B) decrease   (C) stays the same (D) the normal force is zero N.

$N = W\cos\theta$ (see book, example 5.9). As the inclination is made steeper, θ increases and $\cos\theta$ decreases → **Correct answer is B**

5. A 1200-kg car is pulling a 500-kg trailer on level ground. Friction is negligible. The car accelerates with an acceleration of 1.3 m/s². What is the force exerted by the car on the trailer?

(A) 550 N   (B) 600 N   (C) 650 N   (D) 700 N   (E) 750 N

$F = ma = 500 * 1.3$ N $= 650$ N → **Correct answer is C**