Quiz #2: Newton’s 2nd and 3rd Laws

Question 1 (2 points)
If the mass of an object doesn’t change, a constant net force on the object produces constant

a) velocity
b) acceleration
c) both of these
d) none of these

Question 2 (2 points)
As a ball falls, the action force is the pull of the Earth’s mass on the ball. The reaction force is

a) the air resistance acting against the ball
b) the acceleration of the ball
c) the pull of the ball’s mass on the Earth
d) non-existent in this case
e) none of these

Question 3 (2 points)
An object is dropped from rest. If we do not ignore air resistance, as the object falls, its velocity increases and its acceleration

a) increases
b) decreases
c) remains the same whether in air or in vacuum

Question 4 (2 points)
What is Newton’s 3rd law? How is Newton’s 3rd law involved when you jump straight upward?

For every action there is an equal (in strength) and opposite (in direction) reaction. When you jump straight upwards, you push downwards on the ground. By Newton’s 3rd law, the ground pushes upwards on you, which allows you to jump.

Question 5 (2 points)
An object moves with a constant velocity. Can you conclude that no force acts on it? Defend your answer.

No, if an object moves with a constant velocity, you can conclude that the net force is zero. There may be forces acting on the object but these forces add up to zero.