**SPH4U0 Physics Concepts Survey: What do you remember??**

**Basic Kinematics**

True False 1. When an object has negative acceleration, the object must be slowing down.

True False 2. Sanjiv drives around a corner at a constant speed. His car accelerates.

True False 3. Shanda drives around a large circular track in exactly 12 times in 2 hours. Her speedometer

constantly reads exactly 20 km/h during this time. Her average velocity is zero for the trip.

True False 4. Jilesa throws a ball in the air. After the ball leaves her hand, the ball accelerates in the upward

direction as it is moving upward and accelerates in the downward direction as it is moving

downward.

**Basic Dynamics**

True False 5. A table resting on the floor pushes downward on the floor. The floor likewise pushes upward on

the table.

True False 6. If a car hits a tree, the car’s occupants (assuming no seatbelts or airbags) will be violently thrown

forward at the time of the accident due to a force created by the car seats.

True False 7. Friction provides the force which “pushes” a car forward as it accelerates down the road. (Assume

a flat road).

True False 8. An insect flying through the air smacks into a windshield of a rapidly-moving car. The force the

windshield exerts on the insect is higher than the force that the insect exerts on the windshield.

**Gravity**

True False 9. Mass and weight have essentially the same meaning. To increase the weight of an object requires

an increase in the mass of the object.

True False 10. Sean jumps off a chair. As he is falling, the Earth’s gravitational force is higher on him than his

gravitational force on the Earth.

True False 11. Astronaut Chris Hadfield orbits the Earth in the ISS at an altitude of 370 km above its surface. He

appears to be weightless because there is virtually no gravitational force on him.

True False 12. The Moon has no gravity.

True False 13. If a feather and a hammer are dropped on the Moon at the same time from the same height they

will hit the Moon’s surface at virtually the same time.

**Energy Basics**

True False 14. Force is a form of energy.

True False 15. Temperature is the same thing as heat.

True False 16. The principal source of the Earth’s internal energy is radioactivity.

True False 17. All of the following are forms of electromagnetic radiation: radio waves, sound waves, x-rays,

visible light rays, microwaves, infrared rays.

True False 18. To produce heat, the Sun burns hydrogen in a combustion reaction.

True False 19. Jaskaran drops a rubber ball from a height of 1.00 m above the floor and observes that the ball

rebounds back up to a height of 0.90 m. This observation violates the law of conservation of

energy.

True False 20. The speed of sound in air depends upon the frequency and wavelength of the wave.