Assignment 5

Module 1 - Week 5

Exercise: 1. A spherical ball of radius 10 cm is filled with air. If the pressure inside the balloon is 1 atm, find the volume of the balloon. (Volume of a sphere = \( \frac{4}{3} \pi r^3 \))

2. A 1000 cm³ container is filled with water at 25°C. If 500 cm³ of water is removed, find the new temperature of the water. (Heat capacity of water = 4.18 J/g°C)

3. A solid cylinder with a mass of 2 kg and a height of 10 cm is placed on a frictionless surface. If it's velocity is 5 m/s, find the impulse of the cylinder.

4. A 3 kg mass is held above a horizontal surface. If it's velocity is 4 m/s, find the momentum of the mass.

5. A 2 kg sphere is dropped from a height of 3 m. If it's velocity is 5 m/s, find the kinetic energy of the sphere.

6. A 1 kg block is released from a height of 2 m. If it's velocity is 10 m/s, find the work done by gravity on the block.

7. A 4 kg block is thrown horizontally with a velocity of 5 m/s. If it's velocity after 2 seconds is 10 m/s, find the change in momentum of the block.

8. A 2 kg block is dropped from a height of 3 m. If it's velocity after 2 seconds is 10 m/s, find the change in momentum of the block.

9. A 1 kg mass is thrown horizontally with a velocity of 5 m/s. If it's velocity after 2 seconds is 10 m/s, find the change in momentum of the block.

10. A 2 kg block is dropped from a height of 3 m. If it's velocity after 2 seconds is 10 m/s, find the change in momentum of the block.

11. A 1 kg mass is thrown horizontally with a velocity of 5 m/s. If it's velocity after 2 seconds is 10 m/s, find the change in momentum of the block.

12. A 2 kg block is dropped from a height of 3 m. If it's velocity after 2 seconds is 10 m/s, find the change in momentum of the block.