Distinguish, differentiate, compare and explain what is the main difference between Classical and Quantum Mechanics. Comparison and Differences.

Difference between Classical and Quantum Mechanics

1. Classical Mechanics deals with macroscopic particles whereas Quantum Mechanics deals with microscopic particles.
2. Classical Mechanics is based on Newtons laws of motion. Quantum Mechanics takes into account Heisenbergs uncertainty principle and de Broglie concept of dual nature of matter.
3. Classical Mechanics is based on Maxwells electromagnetic wave theory. According to it any amount of energy may be emitted or absorbed continuously. Quantum Mechanics is based on Plancks quantum theory according to which only discrete values of energy are emitted or absorbed.
4. In Classical Mechanics, the state of a system is defined by specifying all the forces acting on the particles. It also counts, particles positions and velocities (moment). The future state then can be predicted with certainty. Quantum Mechanics gives probabilities of finding the particles at various locations in space.