**Q1/Define transportation systems?**

**It is defined as consisting of the fixed facilities, the flow entities, and the control system that permit people and goods to overcome the friction of geographical space efficiently in order to participate in a timely manner in some desired activity.**

**Q2/Classify transportation systems?**

**1) Land transportation: Highway and Rail.**

**2) Air transportation: Domestic and International.**

**3) Water transportation: Inland, Coastal, and Ocean.**

**4) Pipelines: Oil, Gas, and Other**

**Q3/A vehicle approaches an intersection at 30mph.At time t=0 it begins to decelerate at *d*=16ft/s2.**

**Calculate the time it would take the vehicle to stop. Given that at the beginning of deceleration**

**was located 55ft away from the stopping line, determine whether it was able to stop legally?**

**Set the positive x-axis in the direction of motion, with the origin at the initial position of the vehicle. Thus at t=0, v=44ft/s, and a=-16ft/s2. This is the case of constant acceleration. The time it took the vehicle to stop from an initial velocity of 44ft/s is given the equation (v=at+v0):**

**0= -16t +44 or t=2.75s**

**The distance covered during deceleration may be computed from either equation**

**(x-x0=(v2-v02/2a))or(x=0.5at2+v0t+x0):**

**x=60.5ft**

**Because this is greater than the available distance of 55ft, the vehicle was not able to stop before reaching the stopping line.**