Jason Sanghvi Attendance Quiz

1.

i. If G is a simple graph and has the property

$$\deg(u) + \deg(v) \geq n \text{ for all non adjacent vertices, } u, v$$

then there is guaranteed to be a Hamiltonian Cycle

ii. If G is a simple graph and has the property

$$\deg(v) \geq \frac{n}{2} \text{ for all vertices}$$

then there is guaranteed to be a Hamiltonian Cycle

iii. If every vertex has degree greater than or equal to $\frac{n}{2}$, then clearly the sum of degrees between all vertices (specifically non-adjacent) is greater than or equal to n, which, by Ore's Theorem means there is a Hamiltonian Cycle.