

QE for CS546 Wireless Mobile Internet (each 20 points)

1. $WCETT = (1 - \alpha) * \sum_{i=1}^L ETT_i + \alpha * \max_{1 \leq j \leq k} T_j$ where ETT_i is the expected transmission time of link i in a path of length L and T_j is the sum of the transmission times on a particular channel j .

Please point out at least three weakness in the formula of WCETT above. Why?

2. Assuming that you can passively collect traces from WiFi APs, how can you detect a link relationship between an AP and a terminal in either carrier sensing or hidden terminal?
3. Maintaining stable routes provided by AODV over WiFi in Wireless Mesh Networks or Mobile Ad Hoc Networks is very difficult. Why? Explain it with a real scenario.
4. What could be a way to provide indoor localization service using sensors in smartphones?
5. Why the VoIP capacity per Access Point is around 10 % of its max data rate?