

Quiz 1 Solution

1. Explain the difference between ad hoc network and wireless mesh network. (5 points)

Sol) Major difference: infrastructure-based system vs. infrastructure-less system

Wireless mesh network (WMN) is an infrastructure-based system. In WMN, a backbone consists of wireless links and an access point (AP) or base station (BS) operates as an interface between the end-point user and backbone.

However, ad-hoc network (or mobile ad-hoc network) is an infrastructure-less network. In ad-hoc network, end-point users compose peer-to-peer topologies without backbone.

2. Explain about IEEE 802.22 as much as you can. (5 points)

IEEE 802.22 is a new working group of IEEE 802 LAN/MAN standards committee which aims at constructing Wireless Regional Area Network utilizing white spaces (channels that are not used in the frequency band) in the already allocated TV frequency spectrum. The use of the spectrum will be used in an opportunistic way in order not interfere with any TV channel that is transmitting.

Major issue: Avoiding collisions with TV signals and wireless microphones

Transmission range: up to 100 km (~33 km typical)

Considered transmission rate: from 18 Mbps to 24 Mbps

Propagation delays in excess: 300 μ s

Operates in TV bands: 54 to 862 MHz