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Subject: Wireless Network

Q. Differentiate between ad-hoc networks and cellular networks.

Parameter	Cellular Network	Ad-hoc wireless network
1) Infrastructure	They need fixed infrastructure	This are infrastructureless networks.
2) Wireless Links	Single-hop	Multiple-hop.
3) Base-station	Fixed prelocated cell sites and base stations.	Rapid deployment. No base stations are required.
4) setup cost	High	Cost-effective
5) set-up time	More	Less
6) Switching	Circuit switched	Packet switched
7) Mobile host	Low complexity	More complexity and intelligence is needed.
8) Routing	Centralized	Distributed
9) Deployment	Widely deployed	Some issues are to be taken care of.

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	Parameter	Cellular Network	Adhoc WN
10)	Application	Commercial sectors, civilian sectors.	Emergency rescue and search operations, battle fields, etc.

Discuss Multiple access with Collision Avoidance.

Ans. Multiple Access with Collision Avoidance (MACA) is a medium access control (MAC) layer protocol used in wireless and hoc network. It is used to solve the hidden terminal problem and exposed terminal problem. It is an alternate to carrier-sense multiple access (CSMA) which have the hidden terminal problem and the exposed terminal problem.

Working:

The main condition for MACA to work is that the stations are in sync with frame sizes and data speed. It includes transmission of two frame called RTS and CTS preceding information transmission. RTS means Request to send and CTS means Clear to send. stations near to the transmitting station can hear RTS and remains silent to hear the CTS.

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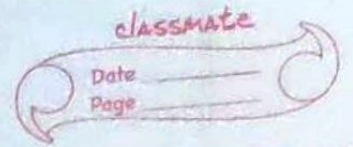
MACA protocol uses RTS and CTS to avoid hidden and exposed terminal problem. In hidden terminal problem two nodes try to contact same node at same time which creates collision to combat this if two nodes sent RTS to same node then the node will receive CTS will send data which will avoid the collision.

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