



# RAMA UNIVERSITY

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## FACULTY OF ENGINEERING AND TECHNOLOGY

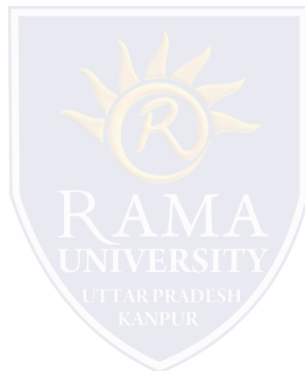
### WSN (MCS-033)

### LECTURE -21

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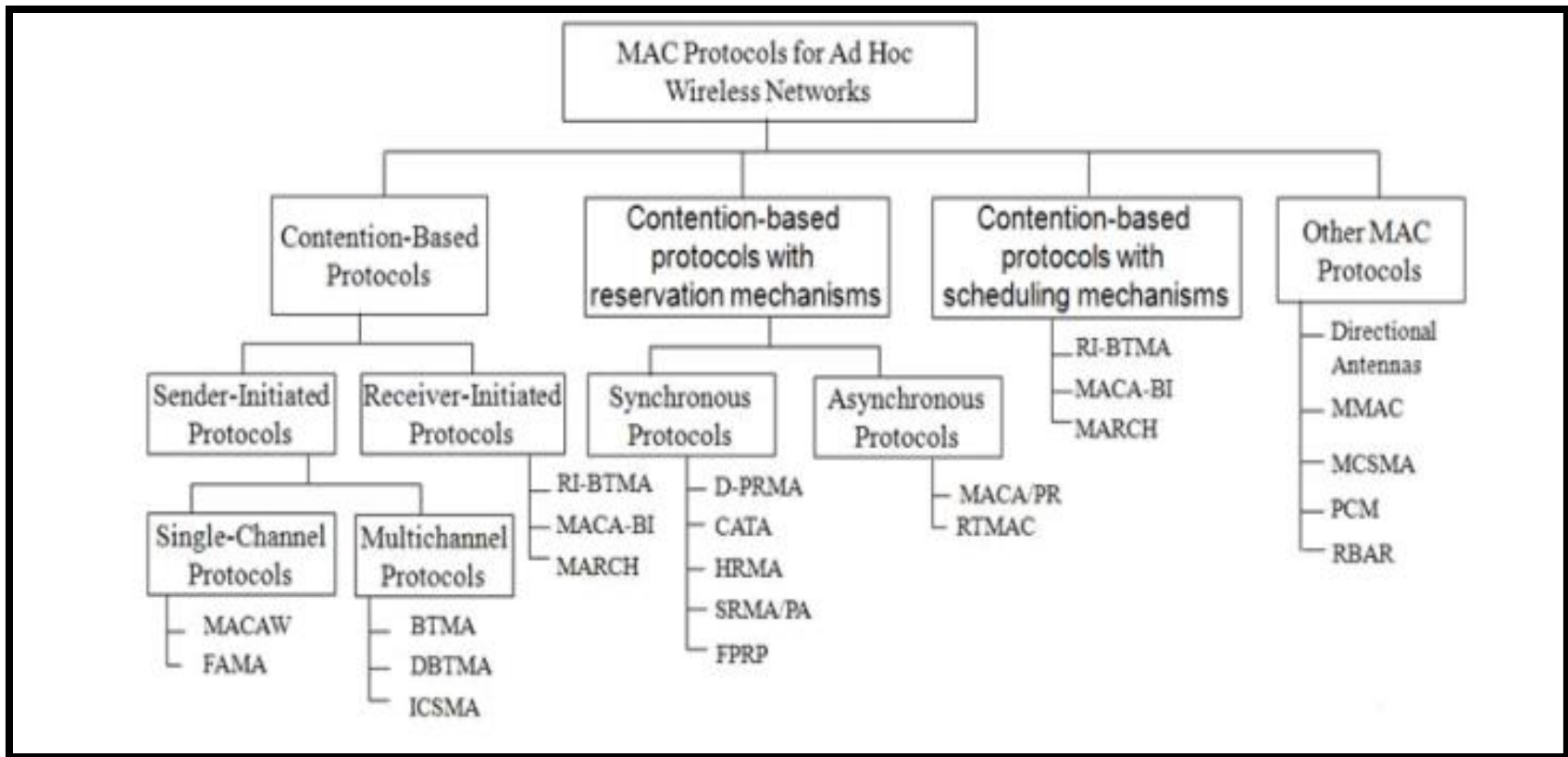
# OUTLINE

- **Classification of MAC protocols**
- **Contention-based protocol**
- **Contention-based protocols with reservation mechanisms**
- **Contention-based protocols with scheduling mechanisms**
- **MCQ**
- **Reference**



# MAC PROTOCOL

## Classification of MAC protocols



## Contention-based protocol

### **Sender-initiated protocols:**

Packet transmissions are initiated by the sender node.

### **Single-channel sender-initiated protocols:**

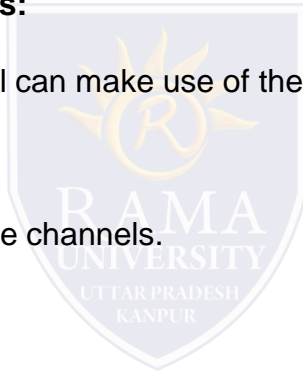
A node that wins the contention to the channel can make use of the entire bandwidth.

### **Multichannel sender-initiated protocols:**

The available bandwidth is divided into multiple channels.

### **Receiver-initiated protocols:**

The receiver node initiates the contention resolution protocol.



## Contention-based protocols with reservation mechanisms

### Synchronous protocols:

All nodes need to be synchronized. Global time synchronization is difficult to achieve.

### Asynchronous protocols:

These protocols use relative time information for effecting reservations.

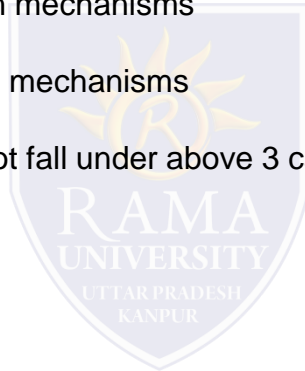
## Contention-based protocols with scheduling mechanisms

- Node scheduling is done in a manner so that all nodes are treated fairly and no node is starved of bandwidth.
- Scheduling-based schemes are also used for enforcing priorities among flows whose packets are queued at nodes.
- Some scheduling schemes also consider battery characteristics.
- Other protocols are those MAC protocols that do not strictly fall under the above categories.

## Classification of MAC protocols

Ad hoc network MAC protocols can be classified into three basic types:

- Contention-based protocols
- Contention-based protocols with reservation mechanisms
- Contention-based protocols with scheduling mechanisms
- Other MAC protocols [protocols which do not fall under above 3 categories]



# MCQ

6. Which of the following is the 802.11 High Rate Standard?

- a) IEEE 802.15
- b) IEEE 802.15.4
- c) IEEE 802.11g
- d) IEEE 802.11b

7. Which of the following spread spectrum techniques were used in the original IEEE 802.11 standard?

- a) FHSS and DSSS
- b) THSS and FHSS
- c) THSS and DSSS
- d) Hybrid technique

8. Which of the following WLAN standard has been named Wi-Fi?

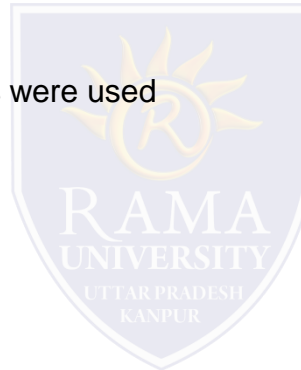
- a) IEEE 802.6
- b) IEEE 802.15.4
- c) DSSS IEEE 802.11b
- d) IEEE 802.11g

9. Which of the following is developing CCK-OFDM?

- a) IEEE 802.11a
- b) IEEE 802.11b
- c) IEEE 802.15.4
- d) IEEE 802.11g

10. What is the data rate of HomeRF 2.0?

- a) 10 Mbps
- b) 54 Mbps
- c) 200 Mbps
- d) 1 Mbps



# REFERENCES

❑ [https://www.academia.edu/25414253/UNIT-2\\_MAC-](https://www.academia.edu/25414253/UNIT-2_MAC-)

[1\\_2.1\\_Issues\\_in\\_Designing\\_Mac\\_Protocol\\_for\\_Ad\\_Hoc\\_Wireless\\_Network](#)

