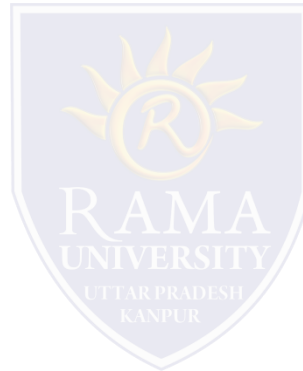# FACULTY OF EGINEERING AND TECHNOLOGY

## WSN (MCS-033)

## LECTURE -14

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- **Wireless Sensor Network Architecture:**

    - **Clustered Network Architecture:**

    - **Properties of Leach Protocol:**

- **MCQ**

- **Reference**

## 2. Clustered Network Architecture:

In Clustered Network Architecture, Sensor Nodes autonomously clubs into groups called clusters. It is based on the *Leach Protocol* which makes use of clusters. Leach Protocol stands for Low Energy Adaptive Clustering Hierarchy.
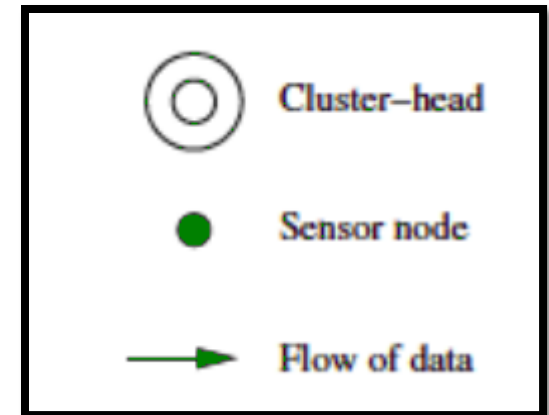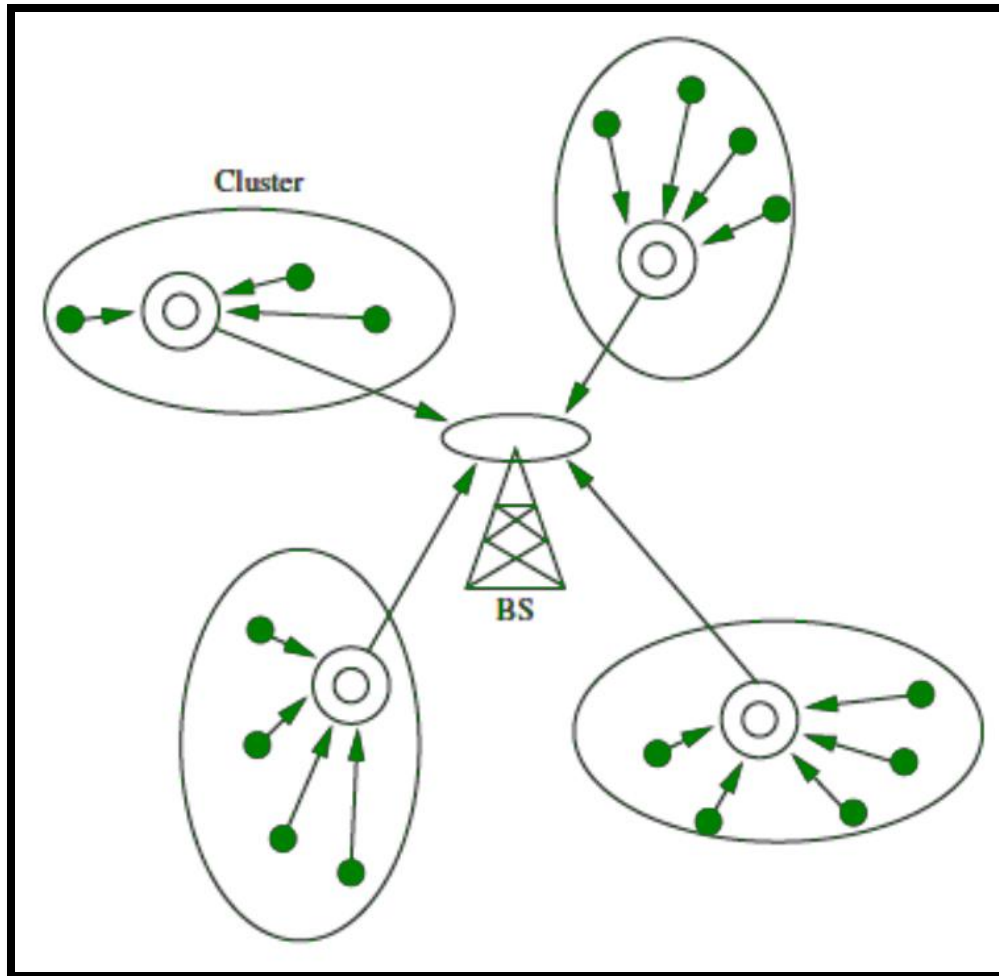
## Properties of Leach Protocol:

1. It is a 2-tier hierarchy clustering architecture.

2. It is a distributed algorithm for organizing the sensor nodes into groups called clusters.

3. The cluster head nodes in each of the autonomously formed clusters create the Time-division multiple access (TDMA) schedules.

4. It makes use of the concept called Data Fusion which makes it energy efficient.
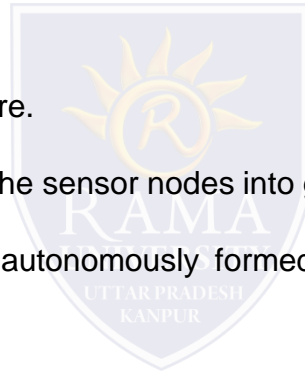
## 2. Clustered Network Architecture:

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Clustered Network Architecture is a very useful sensor network because of the property of Data Fusion. Inside each cluster, each node communicate with the cluster head to gather the information. All the clusters which are formed share their gathered information to the base station. The cluster formation and selection of cluster head inside each cluster is an independent and autonomous distributed process.
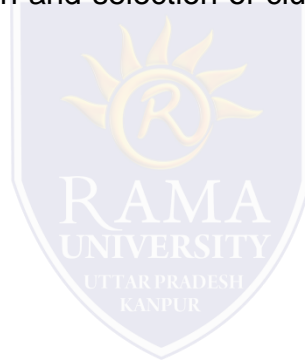
1)  1) Which is not a variant of S-MAC?

(a) Timeout MAC (TMAC) (b) Dynamic sensor MAC (DSMAC) (c) Input-Output MAC (IOMAC) (d) Data gathering (DMAC)

2) Why is implementation of MAC protocols important in context of WSNs?

a)  Supports multi-hop communication, alongside single-hop b) Special design for energy-constrained environments
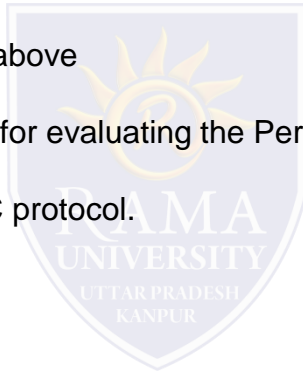
c) Support for Ad-hoc node deployment d) All of the above

3) Which are the Performance Metrics that are used for evaluating the Performance of WSN? Explain each of them briefly.

4) Discuss following main issues of designing a MAC protocol.

i)    Quality of services (QoS)

ii) Hidden and exposed node problem.

# REFERENCES

❑https://www.kth.se/social/files/5431a388f276540a05ad2514/An_Introduction_WSNS_V1.8.pdf

❑https://www.wisdomjobs.com/e-university/wireless-communication-tutorial-2262/wireless-communication-multiple-access-26081.html

❑https://www.tutorialspoint.com/what-are-the-ieee-802-11-wireless-lan-standards

❑https://www.rohm.com/electronics-basics/wireless/modulation-methods#:~:text=Modulation%20Method%20Classification,modulation%20%2C%20and%20Spread%20spectrum%20method.

❑http://thinkspace.csu.edu.au/venkatrajnaidu/2015/03/28/disadvantages-of-wsn/

❑https://www.geeksforgeeks.org/wireless-sensor-network-wsn/

❑https://srecwarangal.ac.in/cse/cse-downloads/WSN-Course-Material-2019-20.pdf