1. Discuss generations of wireless Networks?

We have made very huge improvements in wireless communication and have expanded the capabilities of our wireless Communication System.

1G (1st Generation):-

(Attention) * first time calling was introduced in mobile systems.

* It used analog signals.

* It used FDD scheme and typically allocated bandwidth of 25 Mhz.

* Coverage area was small.

2G (2nd Generation):

* shifted from analog to digital.

* It supported voice and sms both.

* Moderate mobile data Service.

* 2G WLAN provided high data rate & large area Coverage.

3G (3rd Generation):

* Internet system was improved.

* Better System and Capacity.

* offers high speed wireless Internet.

* Connection used as UMTS and WCMA.

4G (4th Generation):-

* IP based protocols.

* LTE (long term Evaluation) was mainly for internet.

* VO-LTE (voice over LTE) is for both voice and internet.

* High usability.

* Supports multimedia service at low transmission cost.

5G (5th Generation):-

* Higher data rates.

* Connectivity will be more fast and Secure.
* Data latency will be reduced to a great level.
* Massive network capacity.

2) Compare wired and wireless Networks.

S.No	Wired Network	Wireless Network.
1.	A wired Network employes wires to link devices to the Internet (or) another network, such as laptops (or) desktop.	Wireless means without wire, media that is made up of electromagnetic waves (or) infrared waves.
2.	Faster transmission Speed.	Slow transmission speed.
3.	propagation delay is low.	propagation delay is high.
4.	More Secure & hence reliable.	less secure & hence less reliable.
5.	Devices must be hard wired.	Installation is Quick.
6.	Less-Expensive	More Expensive.
7.	High installation & maintenance cost	Low installation & maintenance cost.

8.	Hub, switch, etc. devices are used	Wireless routers, access points etc. are used.
9.	Speed and Bandwidth is high	Speed and bandwidth is low.
10.	Connection setup time is less	Connection setup time is more.
11.	Quality of service is Better	Quality of service is poor.

3) What is vehicular Adhoc Network? Explain.

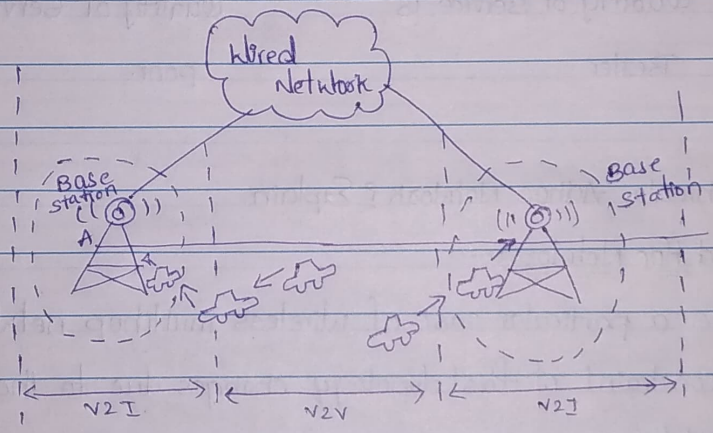
Vehicular Ad Hoc Networks:-

* VANET is a particular case of wireless multihop network, which has the constraint of fast topology changes due to the high node mobility.
* With the increasing number of vehicles equipped with computing technologies and wireless communication devices, intervehicle communication is becoming a promising field of research, standardization, and development.
* VANETs enable a wide range of applications such as prevention of collisions, safety, blind, crossing, dynamic route scheduling a real-time traffic condition, monitoring etc.
* Another important application for VANETs is providing Internet connectivity to the vehicular nodes.
* VANET is a new type of mobile ad hoc Network that comprises self-organizing vehicles as mobile nodes.

* VANet, which encompasses vehicle-to-vehicle (V2V) and vehicle to roadside (V2R) communications, has been proposed for enhancing safety collision avoidence.

* Vehicle location is another target of particular interest to attackers

* Mobile vehicles in VANET might play the role of stationary sensors in infrastructure based networks.



VANET Application:-

* co-operative forward collision warning.
* pre crash sensing / warning.
* Route Guidance & navigation
* optimal speed advisory.
* Internet access in vehicles
* point of access in vehicles.
* point of Interest notification.
* Hazardous location notification.

4) Explain 5G technology its advantages and disadvantages?

5G Technology:-

* 5G technology is expected to provide a new frequency bands along with wider spectral bandwidth per frequency.

* It is yet to come in many Countries.

* Higher data rates.
* fast and security connectivity.
* Data latency will be reduced.
* 30 times faster than 4G.
* Massive network capacity.

Advantages:-

* High reselection and bi-directional large bandwidth shaping.
* Technology to gather all networks on one platform.
* More Effective & efficient.
* provide huge broadcasting data.
* Supports heterogenous Services.
* provides uniform, uninterupted & consistent connectivity across the world.
* Higher download Speed.
* Hyper Connectivity.
* process Optimization.

Disadvantages:-

* Immediate obsolescence - 5G require devices that Support it but current 4G devices can't support 5G, hence become obsolete.

* Insufficient Infrastructure.
* Expensive.
* Risk of Security & privacy issues.