Name: S. Sai Gomathi
class: III - CSE B

MOBILE COMPUTING

* UNIT - 2 (2 marks)

11) what is SGSN? List the functions.

A SGSN is the serving GPRS support Node is responsible for the delivery of data packets and to the mobile station within its geographical service area. Its tasks include packet routing and transfer, mobility management, logical link management, and authentication and charging functions

---

12) Discuss about the services provided by GPRS.

GPRS extends the GSM Packet circuit switched data capabilities and makes the following services possible.

* SMS messaging and broadcasting
* "Always on' internet access
* Multimedia messaging service (MMS)

---

13) Analyze the purpose of UTRAN in UMTS.

The UTRAN allows connectivity between the UE (User Equipment) and the core network. There are four interfaces connecting the UTRAN internally or externally to other functional entities: Iu, Uu, Iub and Iur. The Iu interface is an external interface that connects the RNC to the core Network (CN).

---

14) Explain in what ways is GPRS better than GSM?

GPRS is upgrade over the basic GSM features. It allow the mobile handset to obtain much higher data speed than what standard GSM can offers. In GSM traffic and

signalling follow different multi frame structure.

15) Define UMTS. what are the elements of UMTS?

The UMTS (Universal Mobile Telecommunication System) is a third generation mobile cellular system for networks based on the GSM Standard.

Elements of UMTS:

There are two elements in UMTS

1. RNC & Node B.

16) Generalize the tasks of radio network controller.

* A radio network controller (RNC) is a governing elements in the UMTS radio access network (UTRAN) and is responsible for controlling the node Bs that are connected to it.
* The RNC carries out radio resource management, some mobility management functions and encrypts data before it is sent to and from the mobile

17) Assess the function of core network in UMTS.

* It uses wideband code Division Multiple Access (WCDMA) radio technology for air interface to communicate with UE.

Core Network (CN): It provide switching, routing and transit for user traffic. It also contains the databases and network management functions.

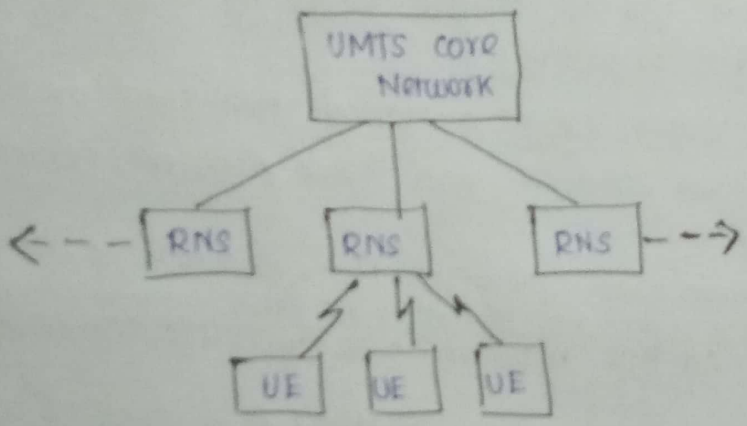
18) Show the different classes of UMTS handover scenarios.

3G UMTS There are several forms of handover including hard handover, soft handover, a form of handover called softer handover and a handover from one radio access technology to another called inter-RAT handover.

19) Differentiate between a GSM network and UMTS network.

Parameters	GSM	UMTS
Datarate	14.4 Kbps	8Mbps
System generation	2G	3G
Base system	TDMA	GSM, GPRS
Carrier Size	800 KHz TDMA	5 MHz CDMA.

20) Develop UMTS network with its interfaces.



UNIT-3

1) Define Mobile IP? Name its Functional entities.

⇒ Mobile IP is an Internet Engineering Task force standard communications protocol that is designed to allow mobile device users to move from one network to another while maintaining a permanent IP address.

* Home Agent (HA)
* Foreign Agent (FA)

2) what is meant by DHCP ? why does an IP conflict occurs ?

→ Dynamic Host configuration protocol (DHCP) is a Protocol for assigning dynamic IP addresses to devices on a network.

⇒ An IP conflict occurs when two or more hosts in the same subnet are configured with the same IP address. When this happens, communications with the two conflicting hosts are mixed up. One host may receive packets that belong to the other one, and vice versa.

---

3) Express the role of subnet mask, Router address, DNS address in DHCP.

Subnet mask : To increase the number of addresses available to clients - you can change either the start address or end address respectively.

Router address : A router can be a Dynamic Host configuration Protocol server, and on most home networks, serves this purpose.

DNS address : Domain name system (DNS) is the system in the internet that maps name of objects into IP number or other resource record values

---

4) Assess the term Ad-HOC network in a wireless communication?

A wireless ad-hoc network (WANET) is a type of local area network (LAN) that is built spontaneously to enable two or more wireless devices to be connected to each other without requiring a central device, such as a router or access point.

---

5) Give the role of agent solicitation message. When it is used?

Mobility agents transmit agent advertisements to advertise their services on a network. In the absence of agent advertisements a mobile node can solicit advertisements. This is known as agent solicitation.

6) Define CoA:

* The term CoA described as care of Address
* The CoA is a temporary IP address for a mobile device
* This allows a home agent to forward messages to the mobile device.

7) Differentiate between Proactive and Reactive Routing protocols.

	Proactive	Reactive
Route structure	Flat / Hierarchical	Flat, except CBRP:
Bandwidth	High	Low
Power	High	Low
Periodic updates	Always required	Not required
Scalability	Nearly upto 150 nodes	Higher than Proactive

8) Identify the roles of DSR protocol

* The term DSR denote Dynamic source Routing protocol
* The role of the protocol, it allows nodes to dynamically discover a source route across multiple network hops to any destination in the adhoc network.

9) Classify different types of MANET Routing protocols.

* Routing schemes in MANET are classified in four major groups.

They are

1. Proactive routing
2. Reactive routing
3. Hybrid routing
4. Flooding.

12) Discuss the three steps used in DSDV for the reconfiguration of path used for ongoing data transfer

1) The end node of the broken link sends a table update message with : - broken link's weight assigned to infinity
- sequence number greater than the stored sequence number for that destination

2) each node resend this msg to its neighbours to propogate the broken link to the network

3) even sequence number is generated by end node, odd - by all other node

---

13) Analyze the strategies used in Inter zone routing and Intra zone routing.

* The reactive mechanism is used in inter-zone routing

* The proactive mechanism for intra-zone routing routing.

---

13) List the disadvantages of DSDV.

* The term DSDV describes Destination Sequenced Distance vector.

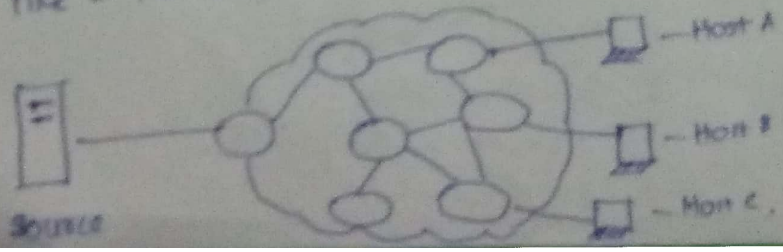
Disadvantage:

* DSDV requires a regular updates of its routing tables. which uses up battery power and a small amount of bandwidth even when the network is idle.

---

14) classify multicast Routing protocols.

The multicast routing is used for one to many communications. The multicast routing there are different routing Protocols like - MAODV, DDMRP, MZRP etc..



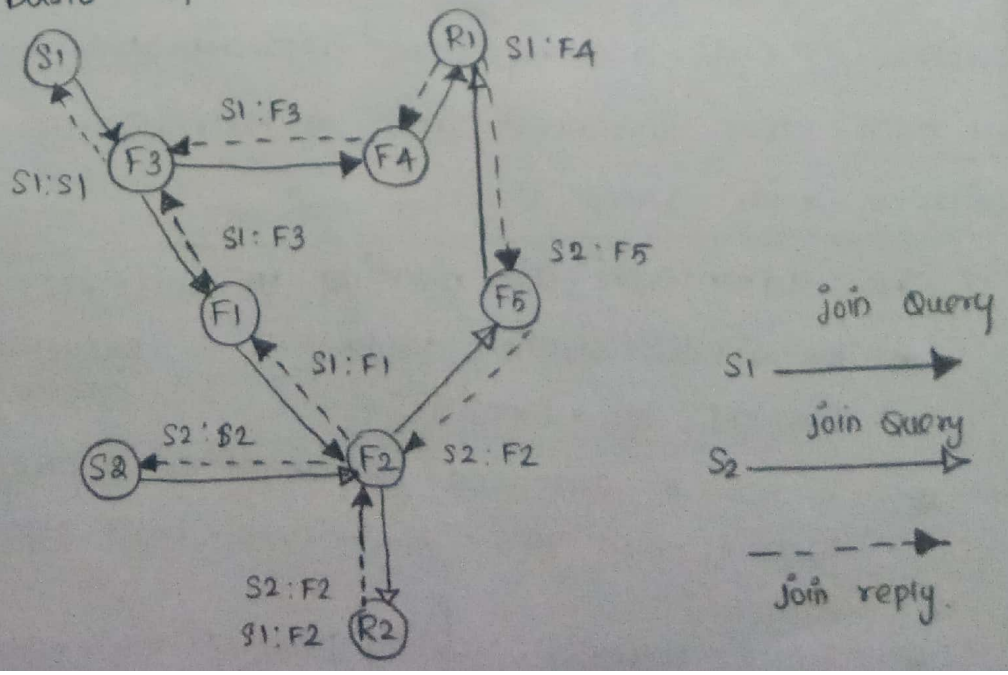
15) How to create a Network multicasting ?

Multicast are used a lot between routers so they can discover each other on an IP network, For example, an open shortest Path First (OSPF) router sends a "hello" packet to other OSPF routers on the network. The OSPF router must send this "hello" packet to an assigned multicast address, which is 224.0

16) Discriminate between Unicasting and multicasting

Unicast	multicast
It has only one sender and one receiver It is one to one technique Example: Browsing a website	It has one or more sender and there may be zero or more receiver It is one to many Eg: ARP request message

17) Show the basic operation of ODMRP using diagram



18) Pointout the differences between MANET and VANET.

	MANET	VANET
mobility	Low	high
Range	Upto 100m	Upto 600m
Production cost	Inexpensive	costly.
Bandwidth	Hundred kps	Thousand kps.

19) Generalize the threats in VANET

* The most potential attacks that VANET faces are classified into data threat and VANET system threat.
* Denial of service attacks is one of the malicious attacks that can deny the on-board units (OBU) or Road side units (RSU) from entering the network as well as interruption to the radio channels.

20) Define VANET:

* The Vehicular AdHoc Network, or VANET is a technology that uses moves cars as nodes in a network to create a mobile network. VANET turns every participating car into a wireless router or node, allowing cars approximately 100 to 300 metres of each other to connect and in turn, create a network with a wide range.

21) Give the advantages of routing in wireless networks.

* The wireless routing protocol is a proactive unicast routing protocol for MANETS.
* It uses an enhanced version of the distance vector routing protocol, which uses the Bellman-Ford algorithm to calculate paths.
* For the wireless routing protocol each node maintain 4 tables: Distance table.