PART – A

1. What is Mobile Computing?

Mobile Computing is defined as the ability to compute remotely while on the move. It is a fast and emerging field that enables people to access information from anywhere at any time. Mobile computing is also known as Ubiquitous computing (or) Nomadic Computing.

2. What do you understand from the term MAC Protocol?

MAC protocol is a medium access arbitration scheme to regulate the user access to a shared medium / channel. It resolves the connection among the nodes/ users when they try to transmit data on the same shared channel at the same time.

3. List the techniques in Multiplexing.

- SDM
- FDM
- CDM
- TDM

4. What are the Mobile Computing disadvantages?

- Interference is persisted in shielding.
- Inefficient bandwidth in transmission.
- Connection losses over entire network.
- Network stability.
- Interoperability problem.
- Protection constraints

5. Define Spread Spectrum.

A collective class of signalling techniques are employed before transmitting a signal to provide a secure communication, known as the **Spread Spectrum Modulation**.

6. How can you define the identifiers/addresses needed in GSM? Give reasons.

The international mobile station equipment identity (IMEI) uniquely identifies a mobile station internationally. A mobile station can only be operated if a SIM with a valid IMSI is inserted into equipment with a valid IMEI. The real telephone number of a mobile station is the mobile subscriber ISDN number (MSISDN).The Mobile Station Roaming Number (MSRN) is a temporary location dependent ISDN number. It is assigned by the locally responsible VLR (Visitor Location Register) to each mobile station in its area.

7. What are the functionalities of GGSN?

The Gateway GPRS Support Node (GGSN), is a node acting as an extension for the SGSN in GPRS networks to connect a GPRS network to an external data network (e.g., Internet).

8. Why UMTS differs from 2G networks?

UMTS networks are different from the 2G networks in the following respects:

- ✓ Higher speech quality – It supports the advthe UMTS supports the advanced data and information services and can be called a true multimedia network.
- ✓ Higher data rate - The UMTS supports 2 Mbps data rate, which is much higher than that supported by the 2G mobile systems.
- ✓ Virtual home environment (VHE) - A user roaming from his network to other UMTS networks will not feel any discontinuity or service difference, thus giving a "feeling" of being in the home network

9. How do you know that the handover scenario is in urge to take place?

1. The mobile station moves away from the range of BTS, the signal received may become increasingly weaker which results in increased error rate and quality of radio link will reduce to an unmaintainable level.
2. The infrastructure (MSC and BSC) decide that traffic in 1 particular cell is too high and may shift some MUs to their neighboring cells that have lesser loads.

10. Define the four Handover scenarios?

1. Intra-cell handover
2. Inter-cell handover
3. Inter-BSC handover
4. Inter-MSC handover

11. Mention the encapsulation concept in mobile IP?

Encapsulation is required because each datagram we intercept and forward needs to be resent over the network to the device's care-of address. The default encapsulation process used in Mobile IP is called IP Encapsulation Within IP, commonly abbreviated IP-in-IP.

12. List out the features of DHCP

Dynamic Host Configuration Protocol (DHCP) is a network protocol that enables a server to automatically assign an IP address to a computer from a defined range of numbers configured for a given network.

PART – B

1. Discuss in detail about the Applications of Mobile Computing.

- Vehicle (3)
- Emergencies (3)
- Business (2)
- Infotainment(2)
- Location Dependent Services (3)

2. Explain in detail about Generations of Mobile Communication Technologies.

- 1G(4)
- 2G(3)
- 3G(3)
- 4G(3)

3. Explain in detail about the services of GSM and its protocol.

- Services(7)
- Protocol (6)

4. With a neat diagram explain the GPRS architecture in detail.

- Architecture(6)
- Explanation(7)

PART – C

1. Elaborate about the scenario of packet delivery to and from a mobile node in detail with diagram.

- Scenario of packet delivery(2)
- Diagrams (5)
- Explanation (8)

2. Write in detail about Reactive Routing Protocols with DSR.

- Reactive Routing Protocols (10)
- Dynamic source routing
- Route discovery(3)
- Route Maintenance(3)
- Examples(1)

3. Write in detail about Reactive Routing Protocols with AODV.

- Reactive Routing Protocols (10)
- AODV (4)
- Examples(1)