

# IT1404 MOBILE COMPUTING

## Part A

1. Define SAMA.

Spread Aloha Multiple Access is a combination of CDMA and TDMA. The CDMA better suits for connection oriented services only and not for connection less bursty data traffic because it requires to program both sender and receiver to access different users with different codes.

2. Define CDMA.

Code Division Multiple Access systems use codes with certain characteristics to separate different users. To enable access to the shared medium without interference. The users use the same frequency and time to transmit data. The main problem is to find good codes and to separate this signal from noise. The good code can be found the following 2 characteristic

1. Orthogonal.

2. AutoCorrelation.

3. What are the several versions in CSMA?

There are several versions in CSMA, they are as follows

a) non-persistent CSMA

b) p-persistent CSMA

c) 1-persistent CSMA

4. What is meant by non-persistent CSMA?

In, non-persistent CSMA, stations sense the carrier and start sending immediately if the medium is idle., if the medium is busy, the station pauses a random amount of time before sensing the medium again and repeating this pattern.

5. What is meant by p-persistent CSMA?

In p-persistent CSMA system nodes also sense the medium, but only transmit with a probability of p. With the station deferring to the next slot with the probability 1-p, i.e. access is slotted in addition.

6. What is SDMA?

Space Division Multiple Access (SDMA) is used for allocating separated spaces to users in wireless networks. The basis for the SDMA algorithm is formed by cells and sectorized antennas which constitute the infrastructure implementing space division multiplexing (SDM)

7. What is FDD?

In FDMA, the base station and the **mobile** station establish a duplex channel. The two directions, **mobile** station to base station and vice versa are separated using different frequencies. This Scheme is called Frequency Division Duplex (FDD)

8.

What are the 2 sub layers in DLC?

Logical Link Control(LLC)

Media Access Control(MAC)

9) What is EY-NMPA?

Elimination yield –Non Pre-emptive Multiple Access (EY-NMPA) is a scheme which uses several phases to sense the medium. access the medium and for contention resolution.. Priority schemes can also be included.

This is actually used in HIPERLAN1 specification.

10) What do you mean by Polling?

Polling is a strictly centralized scheme with one master and several slave stations. The master can collect the list of stations during the contention phase and can poll these slaves according to many schemes like round robin, random access, reservation scheme etc.

11) What are the four types of handover available in GSM?

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

12) What is TETRA?

TETRA (Terrestrial Trunked Radio) systems use different radio carrier frequencies, but they assign a specific carrier frequencies for a short period of time according to demand. TETRA's are highly reliable and extremely cheap.

13) what are the categories of **Mobile** services?

- Bearer services
- Tele services
- Supplementary services

14) What are the services provided by supplementary services?

- User identification
- Call redirection
- Call forwarding
- Closed user groups
- Multiparty Communication

15) What are types of Handover?

Intra-cell handover  
Inter-cell ,intra- BSC handover  
Inter-BSC, intra-MSC handover  
Inter MSC handover

16) What is meant by GPRS?

The General Packet Radio Service provides packet mode transfer for applications that exhibit traffic patterns such as frequent transmission of small volumes.

17) What are subsystems in GSM system?

- Radio subsystem(RSS)
- Network & Switching subsystem(NSS)
- Operation subsystem(OSS)

18) What are the information in SIM?

- card type, serial no, list of subscribed services
- Personal Identity Number(PIN)
- Pin Unlocking Key(PUK)
- An Authentication Key(KI)

19) Define Normal Burst?

The frame used for normal data transmission within a time slot is called Normal Burst.

20) What are the logical channels in GSM?

- Traffic channel(TCH)
- Control channel(CCH)

23) What is the function of Medium Access Control Layer?

The functions of Medium Access Control Layer is responsible for establishes, maintains, and releases channels for higher layers by activating and deactivating physical channels.

24) What is meant by GEO?

GEO means Geostationary or Geosynchronous earth orbit. GEO satellites have a distance of almost 36000 km to the earth. Examples are almost all TV and radio broadcast satellites, many weather satellites and satellites operating as backbone for the telephone network.

25) what are the advantages of GEO?

Three GEO satellites are enough for a complete coverage of almost any spot on earth, senders and receivers can use fixed antennas positions, no adjusting is needed. Therefore GEO's are ideal for T.V and radio broadcasting

26)What is Handover?

The satellite is the base station in satellite communication systems and that it self is moving. So, additional instance of handover are necessary due to the movement of the satellite

- 1.Intra Satellite handover:
- 2.Inter Satellite handover.
- 3.Gateway handover.
- 4.Inter System handover.

27) What are the registers maintained by the gateway of satellite?

- 1.Home Location Register(HLR).
- 2.Visitor Location Register(VLR).
- 3.Satellite User Mapping Register(SUMR).

28)Advantages of MEO

Using Orbits around 10,000Km, the system only requires a dozen satellites which is more than the GEO system, but much less than a LEO system. Further more these satellites move slower relative to the earth's rotation allowing a simpler system design.

Depending on the inclination a MEO can cover larger populations, thus requiring less handovers.

29) Applications of Satellite ?

Satellites can be used in the Following Areas

- Weather Forecasting
- Radio and TV broadcast Satellites
- Military Satellites
- Satellites for Navigation

30)

What are the applications in satellites?

- Weather forecasting satellites
- Radio & TV broadcast satellites
- Military satellites
- Satellites for navigation
- **Mobile** communication

31) What are the advantages of LEO?

- Data rate is 2400 bit/s
- Packet delay is relatively low
- Smaller footprints of LEO allows frequency reuse
- Provide high elevations

32) Define the inclination angle and perigee.

The inclination angle is defined as the angle between the equatorial plane and the plane described by the satellite orbit. An inclination angle of 0 degrees means that the satellite is exactly above the equator. If the satellite does not have a circular orbit, the closest point to the earth is called the perigee.

33) Define the elevation angle and footprint.

The elevation angle is defined as the angle between the centre of satellite beam and the plane tangential to the earth's surface. The foot-print can be defined as the area on earth where the signals of the satellite can be received.

34) Define Header core.

Seven bytes field contains the sizes of the header and the body, the content type of the object. Depending on this header information, the receiver may decide if it has enough resources(memory, cpu, power, display etc) available to decode and further process the object.

35) What is MSC?

Main Service Channel(MSC) carries all user data.  
eg. audio, multimedia data.

36) What is FIC?

The Fast Information Channel(FIC) contains Fast Information Block(FIB) with 256bits each(16 bit checksum). An FIC carries all control information which is required for interpreting the configuration and content of the MSC.

37) What are the different types of disk?

- A flat disks
- Skewed disks
- Multi disks

38) What are the goals of DVB?

The goal of DVB is to introduce digital TV broadcasting using satellite transmission (DVB-5) cable technology (DVB-c) and terrestrial transmission (DVB-7).

39) Name some of the formats supported by MOT?.

- ◆Multimedia and Hypermedia information coding experts group(MHEG)
- ◆Join photograph's experts group(JPEG)
- ◆American standard code for information interchange(ASCII)
- ◆Moving pictures expert group(MPEG)
- ◆Hypertext markup language(HTML)
- ◆Hypertext transfer protocol(HTTP)
- ◆Bitmap(BMP)
- ◆Graphics interchange format(GIF)

40) Give structure MOT object.

7bytes  
variable size  
variable size  
Header core

Header Extension Body

Header core : contain the size of the header and body and the content type of the object.

Header Extension : contains additional object handling data such as repetition distance to support caching, segmentation information and priority of the data.

Body : contains arbitrary data to be transmitted.

41) What are different interleaving and repetition schemes applied by DAB to objects and segments?

1. Object Repetition.
2. Interleaved Objects.
3. Segment repetition.
4. Header repetition.

42) What are the advantages of DAB?

1. DAB can offer sound in CD like quality.
2. DAB can use single frequency network where all senders transmitting the same radio program can operate at the same frequency.
3. DAB use VHF and UHF frequency bands.
4. DAB uses DQPSK modulation scheme.
5. DAB user COFDM and FEC.
6. DAB can transmit up to six stereo audio programmes with a data rate of 192kbit/s each.

43) What is object repetition?

DAB can repeat objects several times. If an object A consists of four segments(A1,A2,A3,A4)

a  
single  
repetition  
pattern  
would  
be

A1A2A3A4A1A2A3A4A1A2A3A4.....

44)

What is EIT?

Event Information Table(EIT) contains status information about the current transmission and some additional information for set-top boxes.

45) What are the service information sent by DVB?

Digital Video Broadcast Containers are basically MPEG-2 frames. DVB sends service information. These information are,

1. Network information table(NIT).
2. Service Description Table(SDT).
3. Event Information Table(EIT).
4. Time and Date Table(TDT)

46) What are the advantages of DVB?

1. Data rates planned for users are 6-38mbit/s for the downlink and 33-100kbit/s for the uplink.
2. Transmitted along with TV programmes and doesn't require additional lines or hardware per customer.
3. Can be used in remote areas and developing countries where there is no high band width wired network.

47) what is meant by beacon?

A beacon contains a timestamp and other management information used for power management and roaming.

e.g., identification of the base station subsystem(BSS)

48) What is Active scanning?

Active scanning comprises sending a probe on each channel and waiting for response. Beacon and Probe response contain the information necessary to join the new BSS.

49) What is Passive Scanning?

Passive Scanning Simply means listening into the medium to find other networks, i.e. receiving the beacon of another network issued by the synchronization function within an access point

50) what is the primary goal of IEE 802.11?

The primary goal of the standard was the specification of a simple, robust, WLAN which offers time bounded and asynchronous services also it should be able to operate with multiple physical layers.

51) what is meant by SIFS?

SIFS means Short Inter Frame Spacing. The shortest waiting time defined for short control message such as acknowledgements or polling response.

52) What are Advantages of wireless LAN?

Flexibility,  
Planning,  
Design,  
Robustness,  
Quality Service,  
Cost,  
Proprietary Solution,  
Restriction,  
Safety and Security

53) What are Design Goals of Wireless LAN?

Global Operation  
Low Power  
License-free Operation  
Robust transmission technology  
Simplified spontaneous co-operation  
Easy to use  
protection of investment  
Safety and Security  
Transparency for application

54)What are the three Low Power States provided by Bluetooth?

PARK state  
HOLD state  
SNIFF state

55)What is SCO?

SCO-stands for Synchronous Connection Oriented Link

Standard telephone (voice) connection require symmetrical, circuit-switched, point-to-point connections.

For this type of link, the master reserves two consecutive slots at fixed intervals.

56)What are the three phases in EY-NPMA?

- i. Prioritization: Determine the highest priority of a data packet ready to be sent on competing nodes.
- ii. Contention: Eliminate all but one of the contenders, if more than one sender has

the highest current priority.

iii. Transmission: Finally, transmit the packet of the remaining node.

57) What are Advantages and Disadvantages of Infrared?

Advantages:

i. Simple and extremely cheap senders and receivers which integrated in almost all **mobile** devices

ii. No licenses are needed for infrared technology and shielding is very simple.

iii. Electrical devices do not interfere with infrared transmission.

Disadvantages:

i. Low bandwidth

ii. Quite easily shielded

iii. Cannot Penetrate

58) What are the system integration functions of MAC management?

- Synchronization
- Power management
- Roaming
- Management information base (MIB)

59) What do you mean by roaming?.

Moving between access point is called roaming. Even wireless networks may require more than one access point to cover all rooms. In order to provide uninterrupted service, we require roaming when the user moves from one access point to another.

60) What is **mobile** routing?

Even if the location of a terminal is known to the system, it still has to route the traffic through the network to the access point currently responsible for the wireless terminal.

Each time a user moves to a new access point, the system must reroute traffic. This is known as **mobile** routing.

61) What are the functions which support service and connection control?

- >Access point control function
- >Call control and connection control function
- >Network security agent
- >Service control function
- >Mobility management function

62) What are the examples for service scenarios identified in WATM ?

- >Office environments
- >Universities, schools, training, centres
- >Industry
- >Hospitals
- >Home
- >Networked vehicles

63) What is BRAN?

The broadband radio access networks(BRAN) which have been standardized by European Telecommunications Standard Institute(ETSI) are a possible choice for an RAL for WATM. Although BRAN has been standardized independently from WATM, there is co-operation between the two to concentrate the common efforts on one goal. The main motivation behind BRAN is the deregulation and privatization of the telecommunication sector in Europe.

64) What are the different network types of BRAN?

- >Hyperlan1

>Hyperlan2

>Hyper access

>Hyperlink

65) What is the main problem for WATM during handover?

The main problem for WATM during the handover is rerouting of all connections and maintaining connection quality.

66) What are the different segments in ATM end-to-end connection?

An ATM end-to-end connection is separated into different segments.

>A fixed segment is a part of the connection that is not affected by the handover

>Handover segment is affected by the handover and is located completely within a handover domain.

67) What is anchor point? .

The Anchor point is the boundary between a handover segment and a fixed segment.

68) What are different types of handover?

>Hard handover

>Terminal initiated

>Network initiated

>Network initiated, terminal assisted

>Network controlled

>Backward handover

>Forward handover

69) What is **mobile** terminal and wireless terminal?.

**Mobile** terminal is a standard ATM terminal with the additional capability of reconnecting after access point change. the terminal can be moved between different access point within a certain domain.

Wireless terminal is accessed via a wireless link, but the terminal itself is fixed, i.e., the terminal keeps its access point to the network.

70) What is generic routing encapsulation?

Generic routing encapsulation (GRE) is an encapsulation scheme which supports other network protocols in addition to IP. It allows the encapsulation of packets of one protocol suite into the payload portion of a packet of another protocol suite.

71) Define COA.

The COA (care of address) defines the current location of the MN from an IP point of view. All IP packets sent to the MN are delivered to the COA, not directly to the IP address of the MN. Packet delivery toward the MN is done using the tunnel.

72) What is meant by Transparency?

Mobility should remain invisible for many higher layer Protocols and applications. The only affects of mobility should be a higher delay and lower bandwidth which are natural in the case of **mobile** networks.

73) What is Generic Routing encapsulation?

Generic Routing encapsulation (GRE) allows the encapsulation of packets of one protocol suite into the payload portion of a packet of another protocol suit.

74)What is Binding Request?

Any node that wants to know the current location of an MN can send a binding request to the HA. The HA can check if the MN has allowed dissemination of its current location.

75) What are the possibilities for the location of care-of-address (COA)?

The two possibilities for the location of care-of-address are:

i.Foreign agent COA



ii. Co-related COA

76) What are the requirements for the development of **mobile** IP standard?

The requirements are:

- a. Compatibility
- b. Transparency
- c. Scalability and efficiency
- d. Security

77) What is COA?

Care Of Address (COA) define the current location of the MN (**Mobile** Node) from an IP point of view. DHCP is a good candidate for supporting the acquisition of Care Of Addresses.

78) What is Dynamic source Routing?

Dynamic Source Routing eliminates all periodic routing updates. If a node needs to discover a route, it broadcast a route request with a unique identifier and the destination address as parameters. Any node that receives a route request gives a list of addresses representing a possible path on its way toward the destination.

79) Why is need of routing?

Routing is to find the path between source and destination and to forward the packets appropriately.

80) Define **Mobile** node:

**Mobile** node:

A **mobile** node is an end-system or router that can change its point of attachment to the

Internet using **mobile** IP. The MN keeps its IP address and can continuously with any other system in the Internet as long as link layer connectivity is given.

81) What is Encapsulation and Decapsulation?

Encapsulation is the mechanism of taking a packet consisting of packet header and data and putting it into the data part of a new packet.

The reverse operation, taking a packet out of the data part of another packet, is called decapsulation.

82) what are the two functions of the transport layer in the internet?

The two functions of the transport layer in the internet are check summing over user data and multiplexing/ demultiplexing of data from applications.

83) what is called the exponential growth of the congestion window?

The sender always calculate congestion window for a window start size of the congestion window is one segment. Sender sends one packet and waits for acknowledgement. If acknowledgement arise it raises the level of congestion window by one. If sender sends two packet if acknowledgement arrises it raises the level of congestion window by two. This scheme raises the level of congestion window every time the acknowledges come back, which takes roundtrip time(RTT). This is called the exponential growth of the congestion window?

84) Advantages of I-TCP:

- I-TCP does not require any changes in the TCP protocol as used by the hosts in the fixed network or other hosts in a wireless network that do not use this optimization.
- Without partitioning retransmission of lost packets would take place between **mobile** host and correspondent host across the whole network.
- Optimization of new mechanisms is quite simple to be done in I-TCP as

they only cover a single hop.

- The short delay between the **mobile** host and foreign agent can be determined and is independent of other traffic streams. Therefore an optimized TCP can use precise time-outs to guarantee retransmission as fast as possible.

- Partitioning into two connections also allows the use of a different transport layer protocol between the foreign agent and the **mobile** host or the use of compressed headers etc. The foreign agent can act as a gateway to translate between different protocols.

.85) Disadvantages of I-TCP:

- The loss of the end to end semantics of TCP cause problems if the foreign agent partitioning the TCP connection crashes.
- An increased handover latency is more problematic in practical use
- The foreign agent must be a trusted entity because the TCP connections end at this point.

86) Define Slow Start?

TCP's reaction to a missing acknowledgement is quite drastic, but necessary to get rid of congestion. The behaviour TCP shows after the detection of congestion is called Slow start.

87) How does data transmission takes place?

Data transmission takes place using network adapters, fibre optics, copper wires, special hardware for routers etc.

88) What is mean by Slow Start?

TCP's reaction to a missing acknowledgement is quite drastic, but necessary to get rid of congestion fast

enough. The behaviour TCP shows after the detection of cogestion is called slowstart.

89) What is mean by SCPS-TP?

The set of protocols developed for space communication is known as space communications protocol standards(SCPS), the extended TCP is called SCPS-transport protocols.(SCPS-TP).

90) What are Advantage and Disadvantage of MobileTCP?

Advantage:

i. M-TCP maintains the TCP end-to-end semantic. The SH does not send any ACK itself but forwards the ACKs from the MH.

ii. If the MH is disconnected, M\_TCP avoids useless retransmissions, slow starts or breaking connections by simply shrinking the sender's window to 0;

iii. Since M-TCP does not buffer data in the SH as I-TCP does, it is not necessary to forward buffers to a new SH.

Lost packets will be automatically retransmitted to the new SH.

Disvantage:

i. As the SH does not act as proxy as in I-TCP, packet loss on the wireless link due to bit errors is propagated to the sender.

M-TCP assumes low bit error rates, which is not always a valid assumption.

ii. A modified TCP on the wireless link not only requires modification to the MH protocol software but also new network elements like the bandwidth manager.

91) What is Fast retransmit?

In TCP, a receiver sends acknowledgements only if it receive any packets from the

sender. Thus receiving acknowledgements from a receiver shows additionally that the receiver continuously receives something from the sender. Therefore, the gap in the packet stream is not due to severe congestion, but a simple packet loss due to a transmission error. The sender can now retransmit the missing packets before the timer expires. This behaviour is called fast retransmit.

92) What is fast retransmit?

The gap in the packet stream is not due to severe congestion, but a simple packet loss due to a transmission error. The sender can now retransmit the missing packet before the timer expires. This behavior is called fast retransmit.

93) What is fast recovery?

The receipt of acknowledgement shows that there is no congestion justifying a slow start. The sender can continue with the current congestion window. The sender performs a fast recovery from the packet loss. This mechanism can improve the efficiency of TCP dramatically.

94) What is HTTP?

The Hypertext transfer protocol is a stateless, lightweight, application level protocol for data transfer between servers and clients. An HTTP transaction consists of an HTTP request issued by a client and an HTTP response from the server. Stateless means that all HTTP transactions independent of each other.

95) What is image scaling?

If a page contains a true color, high-resolution picture, this picture can be scaled down to fewer colors, lower resolution, or finally to only the title of the picture. The user can decide to download the picture separately. Further one can offer clipping, zooming, or detail studies to users if they are interested in a part of the picture.

96) What is WAP?

Wireless application protocol(WAP) is a common effort of many companies and organizations to set up a framework for wireless and **mobile** web access using many different transport systems. Eg. GSM, GPRS, UMTS.

97) What is WMLBrowser?

WMLBrowser is a library that provides several functions typical for a browser, such as prev to go back one card or refresh to update the context of the user interface.

98) Define Damping

Transient changes in topology that are short duration should not destabilize the routing mechanism. Advertisements containing changes in topology currently stored are therefore not disseminated further. A node waits with dissemination if these changes are most likely not yet stable. Waiting time depends on the time between the first and the best announcement.

99) Define Dynamic source routing.

In an adhoc networks where nodes exchanges packets from time to time.

Dynamic Source routing divides the task of routing into two separate problem

i) Routing Recovery: A node only tries to discover a route to destination if it has to send something to this destination and there is currently no known route

ii). Route Maintenance: If a node is continuously sending packets via route, it has to make sure that the route is held urgent. As soon as a node detects pbm with the current route it has to find an alternative node.

100) Define WAP

WAP is Wireless Application Protocol. It is the basic Objective of the WAP forum are to bring diverse Internet content and others data service to digital cellular phones and

other wireless, **mobile** terminals. Moreover a protocol suite should enable global wireless communication across different wireless network technologies. All WAP forum solution must be: interoperable, scalable, efficient, reliable.

### **Part - B**

1. Explain different TDMA schemes in detail.

Fixed TDMA, Classical TDMA, Slotted TDMA, Carrier sense multiple access, Demand assigned multiple access, PRMA Packet reservation multiple access, Reservation multiple access, Reservation TDMA, Multiple access with collision avoidance, Polling, Inhibit sense multiple access.

2. Write notes on DECT and TETRA

System architecture, Protocol Architecture

3. Write notes on UMTS and IMT – 2000

UMTS basic architecture, UTRA FDD mode, UTRA TDD mode

4. Account on CDMA Scheme.

Good code, Orthogonal, Autocorrelation, Spread aloha multiple access.

5. Explain broadcast systems in detail.

Overview – Cyclical repetition of data – Digital audio broadcasting –

Multimedia object transfer protocol – Digital video broadcasting.

6. Explain satellite systems in detail.

History – Applications – Basics – GEO – LEO – MEO – Routing –

Localization – Handover – Examples.

7. Explain GSM systems in detail.

**Mobile** services- System Architecture – Radio interface – Protocols –

Localization and calling – Handover – Security - New data services – HSCSD – GPRS.

8. Explain IEEE802.11 standard for WLANS in detail.

System architecture – Protocol architecture – Physical layer – Frequency hopping spread spectrum, Direct spectrum spread spectrum, Infrared – Medium access control layer- Basic DFWMAC-DCF using CSMA/CA, DFWMAC-DCF with RTS/CTS extension, DFWMAC-PCF with polling, MC frames – MAC management – Synchronization, Power management, Roaming – 802.11b.

9. Write notes on WATM services and Functions.

Wireless **mobile** terminal side functions and mobility supporting network side functions.

10. Write notes on WATM handover.

Handover reference model, handover requirements, types of handover, hand over scenarios, backward handover, and forward handover.

11. Write notes on location management, addressing and access point control protocol.

Requirements for location management , procedures and entities

12. Explain **mobile** IP in detail.

Goals, assumptions and requirements – Entities and terminology – IP packet delivery – Agent discovery – Agent advertisement, Agent solicitation – Registration – Tunneling and encapsulation- IP-in-IP encapsulation, minimal encapsulation, generic routing encapsulation –optimizations – Reverse tunneling – IPv6.

13. Give a detailed account of **mobile** ad-hoc networks.

Instant infrastructure, Disaster relief Remote areas Effectiveness – Routing –

Asymmetric links, redundant links, interference, dynamic topology - Destination sequence distance vector – sequence numbers, damping - Dynamic source routing – route discovery, route maintenance - Alternative metrics – least interference routing.

14. Give a detail note on HYPERLAN.

Reference model and configurations- Physical layer –Data link control layer – broadcast phase, downlink phase, uplink phase, random access phase- broadcast channel, frame channel, access feedback channel, long transport channel, short transport channel, random channel – Convergence layer – Ethernet, IEEE 1394 (Firewire), ATM.

15. Account on BLUETOOTH in detail.

User scenarios- Connection of peripheral devices, support of ad-hoc networking, bridging of networks – Architecture – networking, protocol stack- radio layer – Baseband layer- physical links- synchronous connection-oriented link, Asynchronous connectionless link – link manager protocol –L2CAP – Security –SDP – Profiles –IEEE802.15 .

16. Write notes on traditional TCP.

Congestion control, slow start, fast retransmit/ fast recovery, implications on mobility.

17. Write notes on wireless TCP.

Indirect TCP, snooping TCP, **Mobile** TCP, Fast retransmit/fast recovery, transmission/time-out freezing, selective retransmission, transaction oriented TCP.

18. Write notes on WDP and WTLS.

Figure and explanation about WDP and WTLS.

19. Write notes on wireless transaction protocol..

Figure and explanation about WTP class 0, class 1 and class 2.

20. Write notes on wireless sessions protocol.

WSP/B over WTP and WSP/ B as connectionless session service

21.Explain the various applications of mobile computing:

Various applications and explanation

22.Write notes on UMTS and IMT 2000

Architecture-Frame formats and explanation

23.Explain the various satellite orbit and the parameters associated

Parameters of satellites and explanations-Three orbits and explanation

24.Explain mobile IP in detail

Architecture-various techniques-explanation

25.Explain Traditional TCP

Architecture-Types- Frame formats-Explanation