Bhartiya Institute of Engineering & Technology, Sikar

I mid term Examination

Subject - mobile Computing

Computer Science.

maxi marks - 20

Q. 1.

(a) what is mobile Computing.?

Ans. It is the process of computation on a mobile device. Thus, mobile computing is about providing information anytime anywhere or, more generally, Computing anytime and anywhere. In mobile Computing, a set of distributed Computing systems or services provider servers participate, Connect, and synchronize through mobile Communication protocols.

Definition :-

Mobile Computing is defing as the technology to wirelessly Connect to and use Centrally located information and / or application Software through the application of small, portable and wireless Computing and communication devices.

Thus mobile Computing systems are Computing systems that may be easily moved physically and whose Computing Capabilities may be used while they are being moved. Some of the examples of mobile Computing devices, such as mobile phones, personal digital assistants (PDAs) and laptops.

Components of Mobile Computing :-

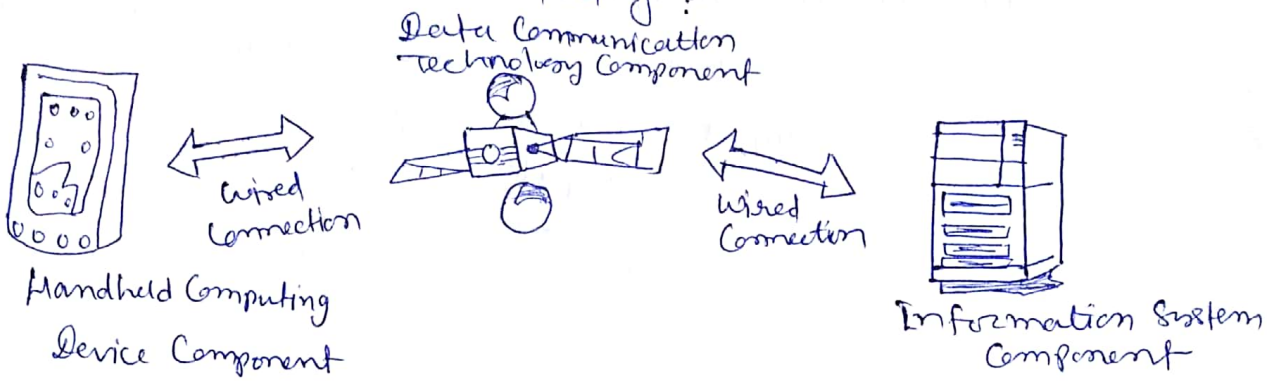

fig ⇒ Components of Mobile Computing

Mobile Computing has three components-

1. Handheld, mobile computing device.
2. Connecting technology that allows information to pass back and forth between the site's centralized information systems and the handheld device and back.
3. Centralized information system.

Since the handled device is the link between the caregiver and the data, it is important to understand its functionality, limitations, and expected enhancements to set current expectations and plan for future growth.

Comparison of mobile computing devices :-

S.No.	Device Type	Product features
1.	Pager Text message only	→ Tiny display → Receive simple text only.
2.	web phones Cellular phone with Internet access	→ Internet browsers functions → Limited email, Calender, appointment scheduling, and directories.
3.	PDA phone Combination of a web phone with PDA functionality.	→ Internet browsers functions. → Email, Calendar, appointment scheduling, and directories.
4.	Personal Digital Assistant (PDA) or Pocket PC Handheld computerized information organizer, examples includes Palm Pilot.	→ Email, Calendar, appointment scheduli and directories. → Some desktop application functions; eg, word and excel.

	amtop Small hand size personal Computer with a keyboard	→ more powerful than a PDA device. → some desktop application functions; eg. word and excel. → keyboard for data entry. → Bar Codding.
6	Tablet / Laptops Tablet is a flat paneled pc, laptop is also known as pc notebook	→ All desktop functionality → Tablets use pen or touch-screen technology.

working of mobile Computing :-

(i.) The user centers or access data (such as stock quotes in real time or on demand, stock purchases or selling, Bank transactions, e-Ticketing? booking cinema, train, flight, and bus tickets) using the application on the handheld Computing device.

(ii.) using one of several Connecting technologies, the new data are transmitted from the handheld to the site's information system files are updated and the new data are accessible to other system users, such as the billing department.

Q. 2.

(b) what is Enabling Concepts for mobile Communications?

Ans: The Concept enabling us to provide universal mobile Communications include terminal mobility provided by wireless access, personal mobility based on personal numbers, and service portability through use of intelligent network (IN) Capabilites. These Concepts are being utilized at the global levels to specify and standardize a range of mobile Communication system and services.

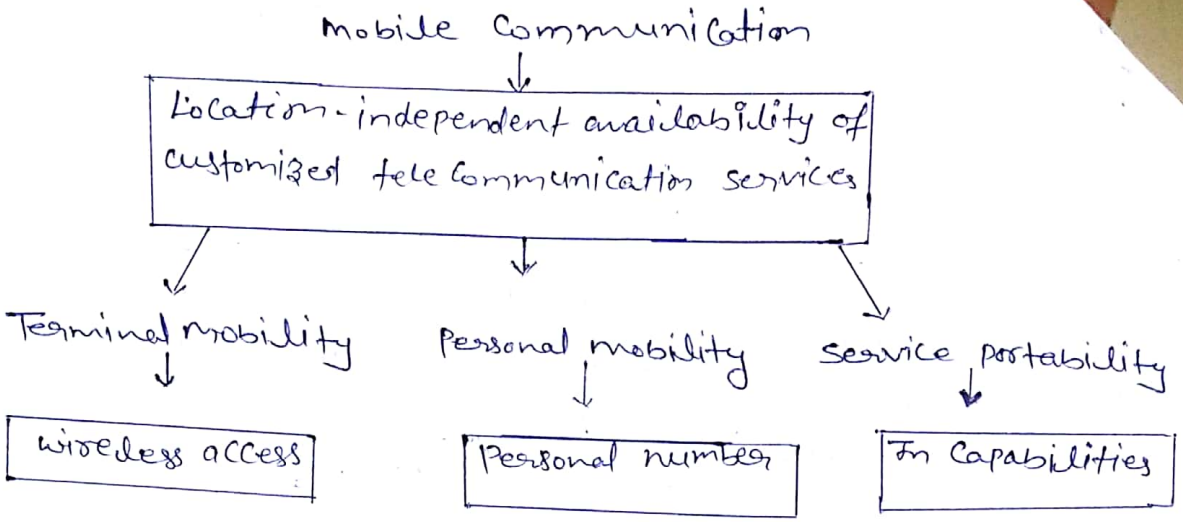

Fig.:- Enabling Concepts for mobile and personal communication services.

1. Terminal mobility :-

systems are characterized by their ability to locate and identify a mobile terminal as it moves, and to allow the mobile terminal to access tele Communication services from any location - even while it is in motion. Terminal mobility is associated with wireless access and requires even while is the user carry a wireless terminal and be within the radio coverage area.

2. Personal mobility :-

on the order other hand ; relies on a dynamic association between the terminal and the user, so that the call delivery and billing can be based on a personal identity (personal number) assigned to user. personal mobility is not associated with any specific type of access technology (whether fixed or wireless)

3. Service portability :-

Refers to the capability of a network to provide subscribed services at the terminal or location designed by the user. The Exact services

users. The exact services user can invoke and the designed terminal, of course depend on the capability of the terminal and the network serving the terminal.

Q.2.

(a) Explain the mobility management?

Ans. mobility management :-

mobility managment means maintaining uninterrupted (seamless) signal connectivity when a mobile devices changes location from within a cell, C_i (or network, N_i) to a cell, C_j (or network N_j), This is illustrated in fig.)

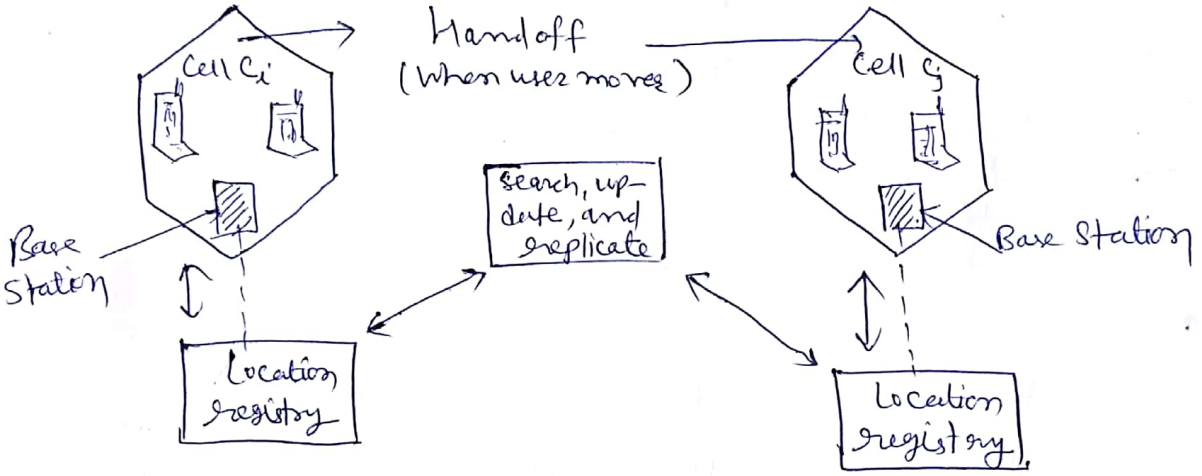

fig → Location registration and handoff processes

To ensure that a mobile node m is able to communicate with some other node n in a network, i.e, for constant connectivity, the networking infrastructure has a ensure the following points:

1. m's location (e.g., its access point (AP) in wireless area networks and base stations in cellular networks) can be determined so that a route can be established between m and n.
2. when m moves out of the range of the current access point (base station), it establishes a connection with another AP.

3. The connection / data packets are rerouted correctly to the new AP.

The first task, which requires maintaining the current location of every mobile node in the networks, is known as location management or localization.

Thus, any location management scheme consists of two operations: search and update.

→ The search operation is invoked by a node that wants to establish a connection with a mobile node whose location it currently does not know.

→ The update operation, also known as a registration operations, is performed to inform the system of the mobile node's current location. The update operation helps in making the search operation more efficient.

In general, the overhead (cost) of search operations depends on.

→ The granularity and currency of location information.

→ The structure of the database that stores the location information, and

→ The search procedure

Q.2.

(b) Explain Low-power Research AT OSI Layers?

Ans. Let's examine further in detail, the low power research which can be done at OSI layers.

① Physical layer:-

In the past, energy efficient and low power design research has centered around the physical layer due to the fact that the consumption of power in a mobile computes is a

result of the system hardware. Research addresses two different perspectives of the energy problem.

(i) An increase in battery capacity
(ii) A decrease in the amount of energy consumed at the wireless terminal.

(2) MAC sub Layer :-

The MAC (media Access Layer Control) Layer is a sub layer of the data link layer which is responsible for providing reliability to upper layers for the point to point connections established by the physical layer interfaces. with the physical layer and is represented by protocols that define how the shared wireless channels are to be allocated among a number of mobiles. There are three specific MAC protocols : IEEE 802.11, EC-MAC ; and PAMAS.