

Subject: Mobile computing.

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Model Test paper I with Solution

Q-1: What is Mobile Computing? Explain the Characteristics of Mobile Computing?

Solution :- Mobile Computing: Environment are provided to use technology at anywhere, anytime is called mobile computing. It is Next generation of computing in which information and communication technology is used 'everywhere' by 'everyone' and 'all the time'.

Characteristics of Mobile Computing:

There are following characteristics of mobile computing are -

- User Mobility → User accesses the services which on move.
- Network Mobility → user move from one network to another accessing the service seamlessly.
- Network itself is mobile as in MANET (Mobile Adhoc Network).
- Bearer Mobility → User uses the same service while switching the bearer.

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- Device Mobility → Use the same service while switching the bearer, from one device to another.

Q-2: Explain Incorporate Adaptation in Application of mobile computing?

Solution: Incorporate Adaptation in Application

The Functionality Adaptation in the Coda (continued data availability) distributed file system developed at Carnegie Mellon University. Coda is designed to maximize the availability of data at the expense of possible access to data. Each Coda client (called Venus) maintains a local cache. Venus adapts its functionality based on the state of the connectivity between the client and server.

Venus uses the following four state:-

- Hoarding → Venus is in the hoarding state when it has strong connectivity with the server.
- Emulating → Venus is in the emulating state when it is disconnected from the server.
- Write-disconnected → Venus is in the write disconnected state when the client has weak connectivity to the server.

Part

- Reintegration → Venus enters this state when³ the connectivity improves to strong connectivity.

Q.3:- What is Adapting Data? Explain the Quality of service (QoS) requirements for such application?

Solution: Adapting Data: Another way to adapt to resource availability is by varying the quality of data (fidelity), where fidelity is defined degree to which a copy of data presented for use at the client matches the reference copy of the server.

the Quality of service (QoS) requirements for such application:

- (i) Information Quality → Ideally, a data item being accessed on a mobile client should be available to the application.
- (ii) Performance →
 - (a) From the mobile client Perspective → Latency of data access should be within tolerable limits.
 - (b) From the System's Perspective → Through-put of the system should be maximized.
- (iii) Fidelity and agility → Data fidelity has many dimensions depending on its type.
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- (a) Video data — frame rate and image quality⁴
(b) spatial data such as topographic maps.

Q-4 :- Describe Mobility Management in mobile Computing Environment?

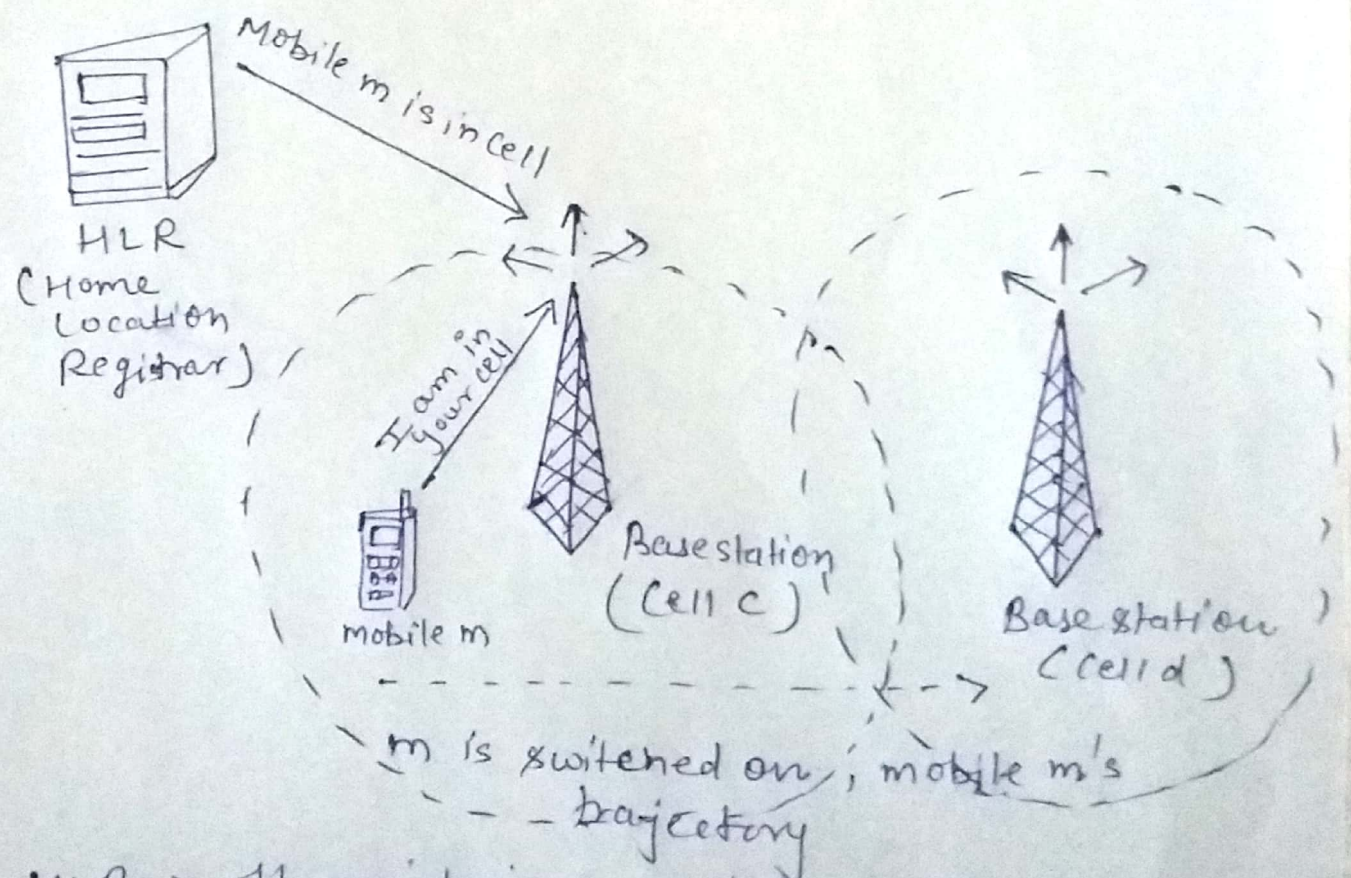
Solution: Mobility management consists of:
location management and hand-off management (Akyildiz, 1998) In the case of mobile telephony, location management is needed to ensure that the mobile node can be located quickly when a new call arrives so that a connection can be established. A call to a mobile node is dropped if the mobile node cannot be reached within a certain time. Location Management plays a crucial role in minimizing the no. of calls that are dropped. Handoff management is needed to ensure that ongoing call continue with minimal degradation in quality of service (QoS) irrespective of mobility of the end point.

Q-5: What is Location Management? Draw the diagram of Registration upon mobile switching on in Location Management scheme?
Pass

Solution:- Location Management:-

Location Management Schemes use several database called Location registers to maintain the location and other information, such as preferences and service profile, of mobile node. A simple location management schemes that uses a single - Location register called the Home Location register (HLR) to maintain the location information of all the mobile node of networks.

Registration upon Mobile switching on



HLR → It maintain a mobility binding (m,c)
Location of mobile node maintain by cell. Part