MCQ Solution

1. The equipment found at a cell site that facilitates the communication of a cell phone user across a cellular network is best described as which of the following?
   A. Cellular network
   B. Base Transceiver Station
   C. Public Switched Telephone Network
   D. Home Locator Register

Answer: **Base Transceiver Station**

2. Which of the following best describes the role of the Base Station Controller?
   A. Manages the radio signals for Base Transceiver Stations.
   B. Assigns frequencies and handoffs between cell sites.
   C. Both A and B are correct.
   D. Neither A or B is correct.

Answer: **Manages the radio signals for Base Transceiver Stations and Assigns frequencies and handoffs between cell sites**.

3. Which of the following are details used by telecommunications carriers for billing purposes and can include phone numbers called, duration of calls, dates and times of calls, and cell sites used?
   A. Equipment Identity Register
   B. Mobile Network Operator
   C. Temporary Mobile Subscriber Identity
   D. Call detail records

Answer: **Call details records**

4. Which of the following typically is not be found on a GSM cell phone?
   A. SIM
   B. IMEI
   C. FCC-ID
   D. MEID

Answer**: MEID**

5. The first three digits of the IMSI are referred to as which of the following?
   A. Mobile Country Code
   B. Mobile Subscriber Identity Number
   C. Mobile Network Operator
   D. Integrated Circuit Card ID

Answer: **Mobile Country Code**

6. Which of the following is a portable wireless router that provides Internet access for up to five Internet-enabled devices and communicates via a cellular network?
   A. Office hub B. Public Safety Access Point
   C. Mobile station D. Mi-Fi

Answer: **Mi-Fi**

7. Which of the following is a high-mobility broadband communication that is suitable for use on trains and in other vehicles?
   A. 2G
   B. 3G
   C. 3GPP
   D. 4G LTE

Answer: **4G LTE**

8. Which of the following is an international standard for signal communications that uses TDMA and FDD (Frequency Division Duplex) communication methods?
   A. GSM
   B. CDMA
   C. UMTS
   D. WCDMA

Answer: **GSM**

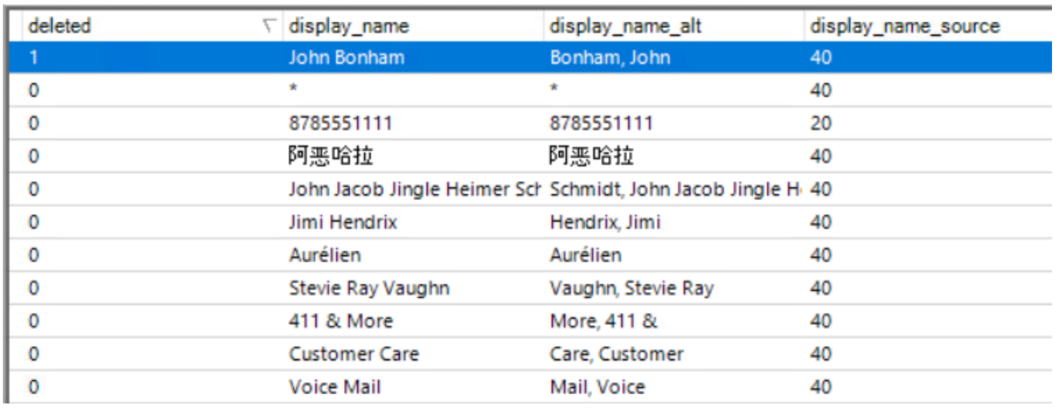
9. Which one of the following directories contains a list of contacts (names and telephone numbers) saved by a subscriber on a SIM card?
   A. EF_SMS
   B. EF_LOCI
   C. EF_LND
   D. EF_ADN

Answer: **EF_ADN**

10. Which of the following mobile operating systems is an open-source operating system based on the Linux 2.6 kernel and is owned by Google?
    A. Symbian
    B. Android
    C. RIM
    D. Windows

Answer**: Android**

Techniques to Recover Deleted Files



deleted	display_name	display_name_alt	display_name_source
1	John Bonham	Bonham, John	40
0	*	*	40
0	8785551111	8785551111	20
0	阿恶哈拉	阿恶哈拉	40
0	John Jacob Jingle Heimer Sch	Schmidt, John Jacob Jingle H	40
0	Jimi Hendrix	Hendrix, Jimi	40
0	Aurélien	Aurélien	40
0	Stevie Ray Vaughn	Vaughn, Stevie Ray	40
0	411 & More	More, 411 &	40
0	Customer Care	Care, Customer	40
0	Voice Mail	Mail, Voice	40

Recovery of deleted files is one of the most sensitive areas of research in the sphere of digital forensics. Indeed, already deleted data can serve as crucial evidence for investigations, exposing user activities connected with criminal behaviour. This essay considers a case where deleted contacts were recovered from a forensic image of an HTC Desire Android device using specialized tools like Paraben E3 Universal. Deleted contacts were recovered from this image, showing that techniques and methodical processes were very important in retrieving these pieces of information apparently lost.

First, the entire recovery process started with ingesting the bit-by-bit forensic image of the HTC Desire in .dd format into the forensic software: Paraben E3 Universal. This will ensure data integrity and that no original evidence has been accidentally altered. The main file examined was 'contacts2.db', located at: *e3://HTC/HTC Desire 626N115018+CHIP+OFF/Partition Parser/Partition7389184/binary_file/EXT4/Root/data_114689/com.android.providers.contacts_114710/databases_114958/contacts2.db_114959/binary_file/database/tables/raw_contacts/10-21?item=row_17* was then investigated, which is an SQLite database containing all active and deleted contact information. This SQLite file was then examined in in-built SQLite Browser of Paraben E3 Universal. Significantly, the 'raw_contacts' table of this database contained a 'deleted' field that served as a clue revealing which items had been deleted from the active list of contacts on the device.

The 'contacts2.db' file was examined as a SQLite database. The 'raw_contacts' table includes fields like 'b', 'display_name_alt', 'display_name_source', and 'deleted'. Notably, the 'deleted' field indicates whether a contact has been removed from active records ('1' for deleted, '0' for active). While examining the table in SQLite Browser revealed a previously deleted contact, "John Bonham," and his associated number. It's just one of those lessons that let me know how various forms of user data are stored within SQLite databases, active on most mobile devices. The use of the 'deleted' flag enabled me to easily separate the active contacts from the deleted contacts and recover perhaps vital information.

The recovery of the "John Bonham" contact details shows the importance of a structured approach in digital forensics. This involves proper documentation of steps taken in evidence acquisition, database analysis, data extraction, and reporting. Accurate record-keeping helps in maintaining the chain of custody and ensures that recovered data is admissible in courts of law. Besides, the use of various specialized forensic tools like Paraben E3 Universal is quite important in ensuring efficiency and reliability during data recovery.

Recovery of deleted contacts from the HTC Desire shows a great way in which digital forensics reveals information that has been hidden. Using special tools and techniques, the investigator is well positioned to recover deleted data from SQLite databases when it appears as though such data is irretrievable. This ability is important in nearly all investigations and can facilitate the recovery of critical evidence that may help in the quest for justice.