Q. 1 Why there is a need of interleaving (fast synchronous switches) in synchronous TDMA?

Answer: In synchronous TDMA (Time Division Multiple Access) systems, multiple devices share the same frequency band by allocating fixed time slots for each device. Each device is designated a specific slot during which it can transmit or receive data. To ensure the accurate and efficient transmission and reception of data by each device, fast synchronous switches are implemented to switch between the different devices in a timely manner. The absence of these fast synchronous switches would result in an inability to maintain the precise timing required for TDMA, leading to the loss or corruption of data.

Furthermore, in synchronous TDMA, the use of flags for identification of frames at the receiver's end is not employed. Therefore, these fast synchronous switches play an important role in pre-determining the time for the acceptance of a particular frame, thereby facilitating the smooth operation of the system.

Q. 2 Why there is no need of interleaving (fast synchronous switches) in statistical TDMA?

Answer: In Statistical Time Division Multiple Access (TDMA) systems, flags are utilized as a means of identifying individual frames of data. These flags are used to distinguish between different frames, allowing the receiver to correctly interpret the received data. Due to the utilization of flags, there is no need for fast synchronous switches to identify the frames. This is in contrast to other multiple access techniques, such as synchronous TDMA, where fast switches are required to ensure that data is correctly assigned to the intended receiver. The use of flags in statistical TDMA allows for a more efficient and reliable method of frame identification, eliminating the need for additional hardware.