

**Cs609**  
**System programming**  
**Subjective file of Recent Papers**  
**Done by Amna**

**Q. synchronization mutex thread synchronization mutex thread model?**

**Ans.** Mutex stands for **Mutual Exclusion**. It is a type of Thread Synchronization mechanism. It is an exclusive lock.

The four synchronization models are **mutex locks, read/write locks, condition variables, and semaphores.**

**Q. Windows API?**

**Ans.** Windows API provides a very simple mechanism for determining the amount of time a process has consumed.

Windows APIs are:

♣ BOOL (for storing a single logical value) ♣ HANDLE (a handle for object) ♣ LPTSTR (a string pointer) ♣ DWORD (32-bit unsigned integer)

**Q. syntax allocat and deallocate function?**

**Ans.** Allocate()

Deallocate      not cnfrm

**Q. interlocked function?**

**Ans.** Interlocked function are simpler and faster. It is easy to use. The most basic these function are InterlockedIncrement() and InterlockedDecrement().

**Q. Callback function?**

**Ans.** Basic programming technique in windows programming is use callback function. A callback function typically performed computation and I/O.

Or

A callback function is a function that is passed as an argument to another function, to be “called back” at a later time.

**Q. Critical section?**

**Ans.** Critical section is the part of the code that can only be executed by one thread at a time. Windows provides the CRITICAL\_SECTION objects as a simple lock mechanism for solving critical section problems. CRITICAL\_SECTION objects are initialized and deleted but do not have handles and are not shared among processes.

**Q. jb Thread object creat karta ha space stack memory wala tha?**

**Ans.** Thread pools are created and assigned thread objects.

The thread object executes via a callback function.

**Q: ASCII ka encoded or Unicode format ma type karna ka ?**

**Ans.** ASCII is the most common character-encoding format for text data in computers and on the internet. In standard ASCII-encoded data, there are unique values for 128 alphabetic, numeric or special additional characters.

Two standard character sets are ASCII and Unicode. The ASCII character set is a 7-bit set of codes that allows 128 different characters.

**Q: semaphore ka management type karni thi Four?**

**Ans.**

- Creating a Semaphore
- Deleting a Semaphore
- Waiting a Semaphore
- Releasing a semaphore

**Q: Error Page ka Code type karna tha**

**Ans.** No idea what type of Question

**Q: Duplicate Handler wala tha us ma Real or original batna tha es ka 2 question bana hoga tha?**

**Ans.** DUPLICATE\_CLOSE\_SOURCE: causes the source handle to be closed

DUPLICATE\_SAME\_ACCESS: Uses the access rights of the source handle.

**Q: dwmillesecond wala tha es ka 2 question bana hoga tha**

**Ans.** dwMilliseconds is the timeout period for wait. 0 for no wait and INFINITE for indefinite wait.

**Q. Window ko Dos say compare kr k 2 advantage btany thy?**

**Ans.** DOS and Windows both are operating systems. DOS is a single tasking, single user and is CLI based OS whereas Windows is a multitasking, multiuser and GUI based OS.

**Q. Interlockexchangeadd ka 2no parameter or return type btanj thi?**

**Ans.** Long InterlockedExchangeAdd(  
LONG volatile \*Addend  
LONG Increment )

**Q. Set or get say process or thread ki API btanj thi affinity mask ki,?**

**Ans.** no idea

**Q. Ek scenario diya tha uski problem btani thi wo memory barriers walo thi?**

**Ans.** no idea

**Q. Interlockedincrement or decrement ka general syntax btana tha**

**Ans.** Long InterlockedIncrement(LONG volatile \*Addend)

Long InterlockedDecrement(LONG volatile \*Addend)

**Q. Close file system ki Api or yeh btana tha k kb succesfully operation or failure overcome hota'**

**Ans.** 32 API in Close file system.

**Q. 4 function naam btany thy semaphores k**

**Ans.**

- CreateSemaphore()
- CreateSemaphoreEx()
- OpenSemaphore()
- ReleaseSemaphore()

**Q.5 options thi statemnt k function btany thy get threadid or get current thread wala tha yeh**

**Ans.** no idea

**Q: ek program given tha complete krna tha wo threadpoolwork wala tha?**

**Ans.** no idea

**Q. what is the API parameters?**

**Ans.** API parameters are the **variable parts of a resource**. They determine the type of action you want to take on the resource. Each parameter has a name, value type and optional description. Whenever you want to build a REST API, you have to decide which parameters should be present in the API endpoint.

**Q. Threads?**

**Ans.** Thread is an independent unit of execution within a process. In a multi-thread systems, multiple threads may exist within a process. Organizing and coordinating these threads is a challenge. Some programming problems are simplified by the use of threads.

**Issues with threads:**

- Threads share resources within a process.
- One thread may inadvertently access another thread's data.

**Thread Local storage (TLS):**

- TLS is a small pointer array.
- Each thread can allocate its own thread local storage.

**Thread identity:**

- GetCurrentThread()
- GetCurrentThreadId()
- GetThreadId()
- OpenThread()

**Q. write the function signature of GetProcessAffinity mask?**

**Ans.** There are three types of ProcessAffinity mask.

**System Affinity Mask:**

Indicates the processor configured in this system.

**Process Affinity Mask:**

Indicates the process that can be used for the process thread.

**Thread Affinity Mask:**

Each thread has a thread affinity mask which is a subset of process affinity mask.

**Q. write the name of API that is used to remove the lock from the locked file area?**

**Ans.** To UnLock a file unLockFileEx() function is used. Parameter list is highly similar to LockFileEx.

**Q. In what condition, the termination Handler is ignored by a process?**

**Ans.** Terminate the process action puts the process in a phase that ends the process, allowing cancel handlers to call. **If the process is already in the end phase**, terminate the process action is ignored.

**Q. write any Pre-defined keys in windows registry structure?**

**Ans.**

HKEY\_CLASSES\_ROOT

HKEY\_CURRENT\_USER

HKEY\_LOCAL\_MACHINE

HKEY\_USERS

HKEY\_CURRENT\_CONFIG (google)

**Q. Name any thread party frameworks that are used for thread optimization.**

**Ans.**

- Executor framework
- Join/Fork framework