



**CS609- SYSTEM
PROGRAMMING**
(SOLVED Current Subjective)
FROM MIDTERM PAPERS



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1. Write names of setting point

Answer:

- ❖ SetFilePointer()
- ❖ SetFilePointerEx()

2. SetFilePointer () and SetFilePointerEx () Write a Functions

Answer:

SetFilePointer() and **SetFilePointerEx()** functions are used to change file pointer position. For random file access. **SetFilePointer()** is clumsy to use for 64 bit operations. **SetFilePointerEx()** can be more readily used for 64 bit operations.

3. Write 2 root key management

Answer:

- ❖ HKEY_CURRENT_USER
- ❖ HKEY_LOCAL_MACHINE

4. Write names of 5 predefined root key

Answer:

- ❖ HKLM
- ❖ HKCC
- ❖ HKCR
- ❖ HKCU
- ❖ HKU

5. Define purpose of dwShareMode and write 3 values of it

Answer:

- ❖ Dwsaremode specifies how the file will be shared.
- ❖ 0 signifies file will not shared
- ❖ File_Share_read
- ❖ Allows for file reading
- ❖ File_Share_Write
- ❖ Allows for writing

6. How many standard IO devices used in Operating

Answer:

- ❖ Input
- ❖ Output
- ❖ Error

7. Modify any record randomly and get the total count of records in the file

Answer:

```
#include "Everything.h"
#define STRING_SIZE 256
typedef struct _RECORD { /* File record structure */
    DWORD referenceCount; /* 0 means an empty record */
    SYSTEMTIME recordCreationTime;
```

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```
SYSTEMTIME recordLastRefernceTime;  
SYSTEMTIME recordUpdateTime;  
TCHAR dataString[STRING_SIZE];  
} RECORD;  
typedef struct _HEADER { /* File header descriptor */  
    DWORD numRecords;  
    DWORD numNonEmptyRecords;  
} HEADER;
```

8. Write the name of three flags?

Answer:

Three flags predefined in Windows

- ❖ HEAP_GENERATE_EXCEPTIONS
- ❖ HEAP_NO_SERIALIZE
- ❖ HEAP_CREATE_ENABLE_EXECUTE

9. Predefined Data types name

Answer:

- ❖ BOOL
- ❖ HANDLE
- ❖ LPTSTR
- ❖ DWORD

10. Remove directory code and Create Directory Code

Answer:

For create directory we will use the following function

```
BOOL CreateDirectory(LPCTSTR lpPathName,  
LPSECURITY_ATTRIBUTES lpSecurityAttributes  
);
```

For remove directory we will use the following function

```
BOOL RemoveDirectory(  
LPCSTR lpPathName  
);
```

11. Return Handler Definition

Answer:

12. Dynamic structure

Answer:

- ❖ Trees
- ❖ Linked List
- ❖ Search Table

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13. Which code include in Try Block

Answer:

The **try block** lets you test a block of code for errors.

14. Which code include in except Block

Answer:

The **except block** lets you handle the error.

15. Which code include in else Block

Answer:

The **else block** lets you execute code when there is no error.

16. Which code include in finally block

Answer:

The **finally block** lets you execute code, regardless of the result of the try- and except blocks

17. read,write ,create ,delete

Answer:

- ❖ **read** function can be replaced by other functions or methods that allow you to read the contents of a file
- ❖ **write** function can be replaced by functions or methods that allow you to write to a file, such as fwrite() in C,
- ❖ **Create** function to create a new file, rather than a separate create function.
- ❖ **Delete** function to delete a file, rather than a separate delete function.

18. Which predefined key is used to store user configuration in window directory?

Answer:

On Windows, the HKEY_CURRENT_USER (HKCU) registry key is used to store user-specific configuration settings.

19. How many values can be pass to the nSTDhandle. Write their names

Answer:

- ❖ STD_INPUT_HANDLE
- ❖ STD_OUPUT_HANDLE
- ❖ STD_ERROR_HANDLE

20. find GetLastError in code

Answer:

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The GetLastError() function is a Windows API function that is used to retrieve the last error code that occurred in the calling thread. This function is typically used to troubleshoot errors that occur in your application, and can be used in conjunction with the FormatMessage() function to retrieve a more meaningful error message.

Here's an example of how to use GetLastError() in C++:

```
#include <system_error>
```

```
if (!SomeWin32Function()){  
    DWORD error = ::GetLastError();  
    std::string message = std::system_category().message(error);  
    ...  
}
```

21. utility of registry

Answer:

The Windows Registry is a hierarchical database that stores configuration settings and options for the Windows operating system and applications, allowing centralized, persistent, easy to access, and customizable configurations.

22. Heap APIs.

Answer:

Heap APIs such as malloc(), free(), new, and delete allow dynamic memory management during runtime in C/C++.

23. move mode of SetFilePointer.

Answer:

```
SetFilePointer(  
    DWORD SetFilePointer(  
    HANDLE hFile,  
    LONG lDistanceToMove, // for 32-bit file  
    PLONG lpDistanceToMoveHigh, // pointer to a long for NTFS  
    DWORD dwMoveMethod  
    );
```

24. what api is used to alloc size of block in heap? Write signature.

Answer:

```
SIZE_T HeapSize()
```

25. Return type of createfile()

Answer:

It's Return Type is

❖ HANDLE

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26. Define the purpose of dwCtrlType identifies the signal and its values can be?

Answer:

- ❖ **CTRL_C_EVENT:** Indicates that a Ctrl-C sequence was entered through keyboards.
- ❖ **CTRL_CLOSE_EVENT:** Indicates that the console window is being closed.
- ❖ **CTRL_BREAK_EVENT:** Indicates Ctrl-Break sequence.
- ❖ **CTRL_LOGOFF_EVENT:** Indicates the user is trying to logoff.
- ❖ **CTRL_SHUTDOWN_EVENT:** Indicates the user is trying to shut down

27. Write the difference between Errors and Exceptions?

Answer:

ERROR	EXCEPTION
Errors are usually raised by the environment in which the application is running.	Exceptions are caused by the code of the app the code belongs to.
It is not possible to recover from an error.	The use of try-catch blocks can handle exceptions and recover the system from exception.
Errors occur at run-time and are unknown by the compiler.	Exceptions may or may not be caught by the compiler.
Programmers include an explicit test to check for error, for example whether a file read/write operation has failed.	An exception could occur nearly anywhere, and it is practical to test for an exception.

28. Which API used to create new heaps

Answer:

HANDLE HeapCreate(DWORD fOptions, SIZE_T dwInitialSize, SIZE_T dwMaximumSize);

29. Can a 3 process have exclusive lock on shared file if 2 processes already having shared locks?

Answer:

No, it is not possible for a 3rd process to have an exclusive lock on a shared file if 2 other processes already have shared locks on the same file.

30. Parameters of Windows Memory Management?

Answer:

VOID GetSystemInfo(LPSYSTEM_INFO lpSysInfo);

31. Define the purpose of

32. dwShareMode and write three values of it?

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Answer:

dwShareMode: This mode specifies how the file is shared?

- ❖ 0 signifies that file will not be shared
- ❖ FILE_SHARE_READ allows the file to be shared for concurrent read
- ❖ FILE_SHARE_WRITE allows the file to be shared for writing.

33. Write the names of five predefined root keys?

Answer:

- ❖ HKEY_LOCAL_MACHINE or HKLM
- ❖ HKEY_CURRENT_CONFIG or HKCC
- ❖ HKEY_CLASSES_ROOT or HKCR
- ❖ HKEY_CURRENT_USER or HKCU
- ❖ HKEY_USERS or HKU

34. Write the types of floating-point exception?

Answer:

- ❖ Invalid operation
- ❖ Division by zero
- ❖ Overflow
- ❖ Underflow
- ❖ Inexact calculation.

35. Pre-defined data types required for Windows APIs?

Answer:

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

36. Describe the briefly the Function of the following two APIs, Don't Discuss their Parameters.

- ❖ RegSetValueEx()
- ❖ RegDeleteValue()

Answer:

RegSetValueEx: is a Windows API function that allows you to set a new value or modify an existing value of a specific key in the Windows Registry, specifying key handle, value name, data type, data buffer and its size.

RegDeleteValue: is a Windows API function that allows you to delete a specified value from a specified key in the registry.

37. Write the Number of characters is encoded in ASCII and Unicode forms.

Answer:

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ASCII (American Standard Code for Information Interchange) uses 7 or 8 bits to represent each character, which allows for a total of 128 or 256 different characters to be encoded.

Unicode, on the other hand, uses a variable number of bits (typically 16 or 32) to represent each character, allowing for a much larger number of characters to be encoded.

OR:

ASCII (8-bit standard) and Unicode (16-bit standard) characters

38. Windows API which is used to change the file access time. Also write the header File in which This API is include.

Answer:

The Windows API function used to change the file access time is "SetFileTime()", and it is included in the header file "Windows.h".

39. Write following API is used to acquired handle to a standard I/O device. How many values to be passed to the nStdHandle parameters? Also Write their Values.

Answer:

The Windows API function used to acquire a handle to a standard I/O device is "GetStdHandle()", it takes one parameter called "nStdHandle" which indicates the standard device for which you want to get a handle.

The values that can be passed to the nStdHandle parameters are the constants **STD_INPUT_HANDLE**, **STD_OUTPUT_HANDLE**, and **STD_ERROR_HANDLE**, which correspond to the standard input, output, and error devices respectively.

40. what is dwsharemod and its defined arguments.

Answer:

"dwShareMode" is a parameter for the CreateFile() Windows API function, it specifies the sharing mode for a file or device and the possible values for it are **FILE_SHARE_READ**, **FILE_SHARE_WRITE**, and **FILE_SHARE_DELETE**. These flags can be combined and passed together as **dwShareMode** argument.

41. Two other C language features that are useful are

Answer:

- ❖ The conditional operator
- ❖ The comma operator

42. Storage of Virtual address.

Answer:

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Virtual address space on secondary memory is also managed by OS to transfer data between primary and secondary storage and accommodate a large process in small memory space.

43. Heapalloc of flag

Answer:

HeapAlloc is a Windows API function that allocates memory from a heap and takes a set of flags such as HEAP_GENERATE_EXCEPTIONS, HEAP_NO_SERIALIZE, HEAP_ZERO_MEMORY to control the behavior of the memory allocation.

44. Register key different between window or dos operating system setvle srtdelete local free format message kay bara ma question thay

Answer:

Windows is a graphical operating system with a graphical user interface, while MS-DOS is a command-line operating system.

45. Function of Local File and Parameter.

Answer:

```
BOOL LocalFileEx(  
    Handle hHandle,  
    DWORD dwFlags,  
    DWORD dwReserved,  
    DWORD nNumberOfBytesLocalLow,  
    DWORD nNumberOfBytesLocalHigh,  
    LPOVERLAPPED lpOverlapped  
);
```

46. Write the feature of C-Library File Processing.

Answer:

- ❖ The code is portable to the operating system Running than the Windows
- ❖ The functions are higher value and easy that the windows functions.
- ❖ Line and Stream Character-Oriented Functions can be Migrate to the Generic Calls.

47. Writhe the Parameter of GetTempFileName API

Answer:

```
UINT GetTempFileName(  
    LPCTSTR lpPathName,  
    LPCTSTR lpPrefixString,  
    UINT uNnique,
```

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```
LPSTR lpFileName  
);
```

lpPathName: It represent the Path File Name.

lpPrefixString: It represent Until_terminated prefix String

uNnique: It represent an Unsigned Integers that is used to create a Temporary File,

lpFileName: It is a pointer to the Buffer that is used to receive a temporaray File.

48. Write the 4 ASCII character which cannot be used in naming in windows File System?

Answer:

- ❖ /
- ❖ \
- ❖ :
- ❖ |
- ❖ ?

49. Write the Parameter of Delete File

Answer:

```
BOOL DeleteFile(  
LPCTSTR lpFileName  
);
```

50. The CreateFile() API CreateFile() API with a list of parameters is used to open or create a new file. Its return type is HANDLE to an open file object in case of successful opening or creation. The parameters are

Answer:

The CreateFile() API is used to open or create a new file, and returns a handle to an open file object on success. Its parameters include the file name, access mode, sharing mode, security attributes, creation disposition, flags and attributes, and template file.

51. What is the purpose of GetFileSizeEX and what is return type?

Answer:

The GetFileSizeEx function retrieves the size of the specified file, and its return type is a BOOL indicating whether the operation was successful or not.

52. Virtual space k storage Win 32 and 64

Answer:

In Windows, virtual memory is a combination of RAM and disk storage used to store data that can't fit in physical memory, and the virtual address space for 32-bit Windows is typically limited to 2 GB, while 64-bit Windows can use up to 8 TB.

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53. Write the API of Tempfile

Answer:

```
UNIT GetTempFileName(  
LPCTSTR lpPathName,  
LPCTSTR lpPrefixString,  
UNIT uUnique,  
LPCSTR lpTempFileName  
);
```

54. Difference Between FormatMessage and GetLastError().

Answer:

The Most important Windows Functions For Reporting an Error GetLastError()
Another method a ForMateMessage() translate the code into Meaningful English.

55. Explain Existing File

Answer:

An existing file is a file that has been previously created and saved in a specific location on a storage device.

