CS410 windows programming/visual programming Past mcqs,papers,

HTTP status code "400" (Bad Request) means:

1. **Request message not understood by server** Naveed Abbas Confirmed
2. Requested document not found on this server
3. Requested document has been moved to some other location
4. All of given options

Which character is NOT permitted in a URL

1. **Space** Naveed Abbas Confirmed
2. Underscore (_)
3. Dot (.)
4. Digits (0 to 9)

The _____ function permits an incoming connection attempt on a socket.

1. **accept** Naveed Abbas Confirmed
2. receive
3. acknowledge
4. none of given options

The _____ function receives data from a connected or bound socket.

1. **recv** Naveed Abbas Confirmed
2. receive
3. get
4. collect

If no error occurs, "bind" function returns zero.

1. **TRUE** Naveed Abbas Confirmed
2. FALSE

DNS is an industry-standard protocol used to locate computers on an IP-based networks

1. **TRUE** Naveed Abbas 100 Right
2. FALSE

The _____ function establishes a connection to a specified socket.

1. **connect** NAVEED 381 HO
2. attach
3. connectsocket
4. attachsocket

HTTP is a _____

1. Text Translation Protocol
2. Text Transport Protocol ANS   NAVEED
3. Text Transformation Protocol
4. **None of given options** WRONG BY NAVEED

Winsock follows the _____ model

1. **Windows open System Architecture** NAVEED CONFIRMED   WOSA
2. Windows Open Service Architecture
3. Windows Open System Access
4. Window Open Service Access

Which of the following is not true about HTTP?

1. It is a protocol
2. It is stateless
3. **It is more difficult to implement than state-aware protocols** NAVEED CONFIRMED
4. A web browser is HTTP client

For TCP/IP, if the port is specified as zero, the service provider assigns a unique port to the

application with a value between _____.

1. 1 and 1024
2. 1 and 4000
3. **1024 and 5000** HO 378   BY NAVEED
4. 1024 and 10240

For showing Dialog we can use "ShowWindow(...)" function

1. **TRUE** BY NAVEED CONFIRMED
2. FALSE

When a menu item is clicked, WM_COMMAND message is send and ID of this menu item is sent in:

1. **wParam**
2. lParam
3. hInstance
4. HWND

The "GetDlgItem" function retrieves a _____ to a control

1. **Handle**
2. Pointer
3. Object
4. None of the given options

The WM_INITDIALOG message is sent to the dialog box procedure _____

1. **Immediately before a dialog box is displayed**
2. Immediately after a dialog box is displayed
3. When DialogProc is called
4. When HideDialog is called

Virtual key code defined by

1. Kernel
2. Application
3. **System** BY NAVEED ABBAS
4. None of given

In which parameter of "CreateWindow" function, we can specify the Menu.

1. **hMenu**
2. hInstance
3. hWnd
4. dialogBox

Neither the user nor the application can make the owner window active until the modal dialog box is destroyed

1. **True**
2. False

When we keep some key pressed for a long time, which one of the following technique keeps the message queue concise

1. Older messages are discarded
2. Call the GetKeyState() funtion
3. Repeat Count contains how many times WM_KEYDOWN message was sent
4. There is no such technique

What is the file extension of the resource file?

1. **.rc**
2. .cr
3. .ico
4. .txt

Which one of the following controls cannot receive input focus?

1. Edit
2. **Static**
3. Option Button
4. Push Button

The DialogProc function is used to _____

1. Create a Dialog
2. Destroy a Dialog
3. Hide a Dialog
4. **process messages sent to a modal or modeless dialog box**

To retrieve the identifier of the menu item at a specified position, we can use the

1. **GetMenuItemID or GetMenuItemInfo function**
2. Only GetMenuItemID function
3. We have to use both GetMenuItemID and GetMenuItemInfo
4. None of the given functins

When you release a key from keyboard, _____ message is sent to your application message queue.

1. WM_KEYRELEASE
2. WM_KEYDOWN

3. WM_KEYPRESSED
4. WM_KEYUP

When an application receives a keystroke message, _____ code is there in wParam parameter.

1. ASCII key
2. Normal key
3. Extended key
4. Virtual key

Device-independed value represents

1. Virtual key code
2. Key code
3. Read only code
4. Mix code

It is not possible to create a dialog box that has no owner.

1. True
2. False Confrmed By Naveed

An application destroys a modal dialog box by using the _____ function

1. EndDialog ho 249 By Naveed
2. TerminateDialog
3. DestroyDialog
4. DestroyModalDialog

If we press an extended key from keyboard, the number of byte(s) sent to keyboard buffer is (are):

- 1
- **2**
- 3
- 4

By default all resources are Discardable.

1. **True** By naveed
2. False

Win32-based applications are event-driven

1. **TRUE**
2. FALSE

_____, system sends the item's identifier to the owner window?

1. **When the user chooses a command item from a menu**
2. When the system chooses a command item from a menu
3. When the user click on any window area
4. When the system de-select the item menu

An accelerator, not always needs to correspond to a menu command.

1. **TRUE**
2. FALSE

If the load menu function fails so what will be the return value.

1. 0
2. False
3. **Null**
4. 1

Which function is not used to handle a caret?

1. CreateCaret()
2. DestroyCaret()
3. SetCaretPos()
4. **DenyCaret()**

In the case of extended keyboard characters, first byte of keyboard buffer contains _____ and second byte contains _____.

1. scan code, extended code
2. **extended code, scan code***
3. 0, scan code Not sure
4. scan code, 0

Who generate a unique handle for each menu

1. **System**
2. User
3. Dialog box
4. Menu Items

An application destroys a modal dialog box by using the

1. **EndDialog**   By Naveed
2. TerminateDialog
3. DestroyDialog
4. DestroyModalDialog

Which function loads the specified menu resource from the executable (.exe) file associated with an application instance

1. **LoadMenu()** 231 ho   Confirmed By Naveed
2. Load_Menu()
3. Load_M()
4. None of given

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Result of _____ of two bits is TRUE (1) if only if both are TRUE (1)

1. OR (I)
2. XOR
3. **AND (&)**
4. NOR

_____ acts as a buffer between applications and output devices.

1. **GDI** Confmed By Naveed
2. Kernel32
3. OS
4. CPU

If first non wide space character will be #, so it will be called _____.

1. **Preprocessor Directives** Confmed By Naveed
2. Preprocessor Folder
3. Preprocessor Director
4. None of Given

Ptr -> age is equivalent to _____

1. ***ptr.age** Confmed By Naveed
2. ptr.age
3. (ptr).age
4. (*ptr).age

The system paints the background for a window or gives the window, the opportunity to do so by sending it a _____ message

1. WM_FILLBKGND
2. **WM_ERASEBKGND** 165 page By Naveed
3. WM_SYSCOMMAND
4. WM_OVERLAPPED

An active window is the one that:

1. is at the bottom of Z-order
2. is owner of other windows
3. **is at the top of Z-order**
4. is owner of other windows

*(a+i) can also be written as _____

- **a [i]…?**
- a[i+1]
- *a
- *a+1

GDI presents _____

1. **Device-independent view** Confirmed By Naveed
2. Device-dependent view
3. Monitor-dependent view
4. None of given

GDI is implemented through _____

1. GDI.dll
2. Win32.dll
3. **GDI32.dll** Confirmed By Naveed
4. Kernel

A _____ is a structure that defines a set of graphic objects and their associated attributes, as well as the graphic modes that affect output.

1. Kernel
2. Pen
3. Bitmap
4. **Device Context** Confirmed By Naveed

Static variables are made on _____ memory location

1. **Fixed**
2. Stack
3. Pointer
4. Variables

GDI stands for _____

1. Graphics Driver Interface
2. **Graphics Device Interface** Confirmed By Naveed
3. Graphics Direct Interface
4. None of the given options

What kind of messages can be display using messagebox function?

1. Long Messages
2. **Short Messages**
3. Null Massages
4. None of Given

A _____ is commonly used to handle background tasks

1. **Worker thread** Confirmed By Naveed
2. User Interface thread
3. Parent thread
4. Process thread

Graphical device interface communicates between application and _____ driver

1. Port
2. Operating System
3. **Device**
4. Kernel

Condition(s) in which WM_PAINT message may be sent is/are _____

1. A dialog box is maximized
2. A drop-down menu disappears
3. A tool tip is displayed and then it hides
4. **All of the given options**

If we pass NULL value to "GetDC" function, it retrieves the DC for the:

1. **Entire Screen**
2. Parent Window
3. Client Window
4. It does not retrieves DC

The ____ function retrieves a handle to a display device context (DC) for the client area

of a specified window or for the entire screen.

1. GetHwnd
2. **GetDC**   Confirmed By naveed
3. GetGDI
4. GetStockObject

Preprocessor directive starts with _____ symbol.

1. **#**   By naveed
2. &
3. *
4. %

The window _____ is the color or pattern used to fill the client area before a window
begins drawing

1. Caption
2. Color Palette
3. **Background**
4. Foreground

A Window that has a parent is called a _____ Window

1. Parent
2. Main
3. **Child**   By naveed
4. Owner Window

_____ tell the operating system about the characteristics and physical layout of its
windows.

1. Register Class
2. Object Class
3. **Window Class**
4. Common Class

The SelectObject function selects an object into the specified

   1. Object Context (OC)
   2. **Device Context (DC)** 178 page   By Naveed
   3. Window Context (WC)
   4. Class Context (CC)

In the GDI environment there are two working spaces

   1. **Logical and the Physical** By Naveed
   2. Local and the Global
   3. Static and the Dynamic
   4. Direct and the Indirect

_____ is the handle to icon associated with Window Class.

   1. **hIcon**   By Naveed
   2. hCursor
   3. HINSTANCE
   4. UINT

Name of the three dimensional array is the address of

   1. First Row
   2. First Element
   3. **First page**
   4. Last Page

We can undefine already defined preprocessor directive using

   1. **#undef**
   2. #unifdef
   3. #unenddef
   4. None of given

The _____ function writes a character string at the specified location, using the currently selected font, background color, and text color

   1. printf(...)
   2. PrintText(...)
   3. **TextOut(...)**
   4. cout

_____ is responsible for Stack Rewinding when called-function returns.

1. Function
2. Pointer
3. Called function
4. **Caller function**

DC stands for

1. **Device Context (DC)**

_____ is used to check the predefined identifiers.

1. #include
2. **#ifdef**
3. #def
4. #elif

Specific memory areas where parameters are copied are _____

1. **Stacks**
2. Arrays
3. Queues
4. Lists

We can create a window using _____

1. RegisterClass ( )
2. WNDClass
3. **CreateWindow ( )**
4. DestroyWinndow( )

Identifier is not replaced if it appears

1. In a comment
2. With in a string
3. As a part of a long identifier
4. **All of given**

Person { char name[30]; //30 bytes int age; //4 bytes float height; //4 bytes }; struct Person abc, *ptr; ptr = &abc; ptr = ptr + 1; How many bytes will skip this statement?

- **38**
- 40

- 39
- Nothing will skip.

_____ is unique identifier of the registered window class return by Registeredclass ()

1. Handle
2. Cursor
3. Object
4. **ATOM**

DOS boxes are also called _____

1. Main Window
2. **Console Window**
3. Dialogue Box
4. Arrays

Long chain of keywords in declaration can be shortened. Above line is the advantage of _____.

1. **Typedef**
2. Struct
3. Union
4. None of given

Which languages are more close to machine language

1. **Low Level Languages**
2. Machine Level Language
3. C++
4. java

Union Person { char name[30]; //30 bytes int age; float height; }; Union Person abc, *ptr; Ptr = &abc; ptr = ptr +1; How many bytes will skip after executing ptr = ptr +1

- 38 bytes will skip after executing ptr = ptr +1.
- **30 bytes will skip after executing ptr = ptr +1.**
- 31 bytes will skip after executing ptr = ptr +1.
- 32 bytes will skip after executing ptr = ptr +1.

_____ inserts a WM_QUIT message in the program's message queue.

1. **PostQuitMessage (0)**

2. WM_TIMER
3. KillTimer ()
4. DispatchMessage () By Naveed

Message loop ends when the GetMessage() function removes the following message from the message queue:

1. WM_SETFOCUS
2. WM_PAINT
3. WM_SYSCOMMAND
4. **WM_QUIT**

Which one of the following messages has lowest priority?

1. WM_SYSCOMMAND
2. WM_PAINT
3. WM_QUIT
4. WM_COMMAND
5. **All have same priority**

We want to declare a variable in a function such that whenever the function is called, the variable is not reinitialized. The storage class of the variable must be:

1. Auto
2. **Static**
3. Extern
4. All of the given options
5. None of the above

What is a function pointer?

1. A pointer that passes as an argument to the function
2. A pointer that is declared inside the function
3. Some returning pointer
4. A pointer that takes return value of some other function
5. **A pointer that points to the starting address of the function**

How many parameters do WinMain function contains

- **1**

- **2**
- **3**
- **4**
- **5**

Which of the following class of window is pre-registered?

1. main window
2. pop-up window
3. **system window**
4. child window
5. parent window

Which of the following is not a user defined data type?

1. Structures
2. Enumerations
3. Typedefs
4. **None of the above**

Which of the following is not a feature of windows programming?

1. Resource sharing
2. Device independent programming
3. Multitasking
4. **Single path of execution**
5. GDI (Graphics Device interface)

Device independed value represents

1. Virtual key code

2. Key code

3. READOnly code

4. None of Given

------- is a subsystem responsible for displaying text and images on display

devices and printers.

1. Brushes

2. Pens
3. **GDI (Graphics Device Interface)**
4. Kernel
5. Operating system

Which one of the following statements is not true?

1. GDI is responsible for displaying text on the display devices
2. Kernel is responsible for thread synchronization
3. **GDI is device dependent**
4. Kernel is responsible for virtual memory management

Union person{Char name[30];Int age;Float height;};void main(){person abc;

}How many bytes will be allocated to abc;

- 42
- 30
- 38
- 36
- 28

__Line__ convert the current _____ in program.

1. **Line No**
2. File No
3. Page No
4. None of given

C language is an extensible language.

1. **True**
2. False

_____ is/are the type(s) of Logical Brushes.

1. Solid
2. Hatched
3. Patched
4. **All of the given**

_____ is/are type(s) of macro.

1. Object-like macro
2. Function-like macro
3. **All of the given**
4. None of the given

_____ macro expands to the constant 1, to signify that this compiler conforms to ISO standard C.

1. _STD_
2. **_STDC_**
3. _STDC_HOSTED_
4. _STDC_VERSION_

char(*ptrString)[4][2];

How many bytes will be skipped by the statement ptrString += 2?

1. 16
2. 1
3. 4
4. **8….?**

If we destroy owner window then _____.

1. Only owner window will be destroyed
2. Only its owned window will be destroyed
3. **Both owner and owned window will be destroyed**
4. The application will be crashed

Choose Command line user interface

1. **MS DOS**
2. MS Windows
3. MS Word
4. MS Visio

Window Operating System Do not give us

1. Direct memory access
2. Direct access video ports

3. Direct memory interrupt
4. **All of the given**

We can display symbolic constants instead of numeric values using:

1. Structures
2. **Enumeration**
3. Unions
4. Typedef

Pump the blood in the whole body of a human being. This work done by the heart

But what will be the heart of an operation system.

1. **Kernel**
2. Win32
3. Virtual Memory
4. ROM

Which one of the following is not a nonqueued message?

1. WM_ACTIVATE
2. WM_SETFOCUS
3. WM_WINDOWPOSCHANGED
4. WM_SETCURSOR
5. **None of given...actually all are nonqueued msgs**

The basic building block for displaying information in the "Microsoft Windows"

graphical environment is _____

1. Messeage Queue
2. WinMain
3. Message Loop
4. **Window**

_____ is one of user interface elements

1. **Accelerator**
2. Message Loop
3. WinProc
4. None of given options

_____ determines that, which threads should run and when they should run?

1. **Scheduler**
2. Thread itself
3. Messages
4. None of the given options

_____ handles user inputs and responds to user events independently.

1. **User-Interface Thread**
2. Worker Thread
3. Kernel Thread
4. None of given options

_____ provides the functionality to create and manage screen windows and

most basic controls.

1. GDI
2. Common Dialog Box
3. Common Control library
4. **User Interface**

The first step in creating a window is registering a window class by _____

1. Using DispatchMessage API
2. **Filling a WNDCLASS structure and calling RegisterClass**
3. Getting Window Handle
4. None of given options

Two types of Subclassing are:

1. Automated Subclassing and Manual Subclassing
2. Static Subclassing and Dynamic Subclassing
3. Local Subclassing and Global Subclassing
4. **Instance Subclassing and Global Subclassing**

_____ is the smallest rectangle enclosing the portion of a window or client

Area affected by recent drawing operations

1. Invalid Rectangle

2. **Accumulated Bounding Rectangle** Confirmed By Naveed
3. Accumulated Client Rect
4. All of the given options

Which message is generated by the system only when any part of application window becomes invalid?

1. WM_BRUSH
2. **WM_PAINT** By Naveed
3. WM_COLOR
4. WM_CANVAS

Which GDI environmental space has limited colors?

1. Logical space
2. **Physical Space**
3. Virtual Space
4. Default Space

For whom system registers the system class.

1. **Window class**
2. Register class
3. Process
4. None of given

To maximize the flexibility of the process's memory management system can

moves pages of physical memory to and from a paging file on the disk.

1. **True**
2. False

The pages size in x86 Computers is _____.

1. 4 bits
2. 4 bytes
3. **4 Kilobytes**
4. 4 Maga Bytes
5. 4 Gaga Bytes

The size of pages depends on the host computer.

1. **True**
2. False
3. Physical Storage and the
4. Virtual

Address Space of each process is organized in ____.

1. **Pages**
2. Page Map
3. paging file
4. Process Map

A disk file used to increase the amount of physical storage is known as _____.

1. Fiber
2. page map
3. **paging file**
4. pages

_____ is a reserve word in resource file.

1. Statement
2. Cursor
3. Bitmap
4. **Icon.**

_____ function is used to invalidate a window or part of it.

1. BeginPaint
2. **InvalidateRect**
3. EndPaint
4. DefWindowProc

If bind function fails then what kind of error it will return.

1. **SOCKET_ERROR**
2. SOCKET_FAILED
3. SOCKET_FAILED
4. None of the given

Consider the following statements written in a DLL:

__declspec (dllexport) int Factorial(int);

int Average(int, int);

Which of the following statements is true about the above statements?

1. Factorial() and Average() are 2 public functions of the DLL
2. Average() is the only public functions of the DLL
3. Factorial()is the only public functions of the DLL
4. **This DLL does not have any public functions**

Which one of the following operations is common to both client and server sockets:

1. Bind
2. Listen
3. Accept
4. **Send**

What will happen if we use PostThreadMessage for a thread that does not have the message queue?

1. Nothing will happen
2. It will cause a run time error
3. Thread will resume processing
4. **Its message queue will be created**

To create semaphore objects which function use by thread?

1. **CreateSemaphore()**
2. CreateSemaobject()
3. CreateObject()
4. Create()

RFC stands for

1. **Request for comments**
2. Request of connects
3. Reference for connect
4. Request for cancels
5. This DLL does not have any public functions

When every any GDI function call is made or send message or post message function calls are made then which queuing will create?

1. **Message Queuing**

2. Function Queuing
3. Process Queuing
4. None of the given

Copy-on-write protection is an optimization that allows multiple processes to map their virtual address spaces such that they share a physical page until one of the processes modifies the page. This definition belongs to which technique.

1. **Lazy evaluation**
2. Fast evaluation
3. Process evaluation
4. None of the given

If the dialog box procedure returns FALSE, then which message handling will be performed?

1. **Default**
2. Instance
3. Object
4. None of the given

How many parameters take the dialog box procedure?

1. 1
2. 0
3. 6
4. **4**

What does hmenu mean?

1. Handle to window
2. **Handle to the menu**
3. Handle to child window
4. Handle to highest menu

Which message function determined where to send message.

1. **DispatchMessage**
2. MessageDispatch
3. GetMessage
4. None of the given

In 32-bit windows programming, we are freed from the curse of 64k segments.

1. **True**
2. False

Which function we use to register windows classes in window?

1. **RegisterClass();**
2. RegistersClass();
3. RegisterWin();
4. WinReg();

Which operator manipulates individual bits?(Bitwise Operators)

1. Individual Bits
2. Linked Bits
3. Individual Bytes
4. Linked Bytes
5. **None of given**

double *ptr is pointer variable which stores double type address.

1. **True**
2. False

All bits in high word of a 32-bit pointer are _____.

1. Non-zero
2. Zero
3. **Two**
4. None of the given

An accelerator _____ to correspond to a menu command.

1. Needs
2. **Needs not**
3. Is essential
4. Is necessary

CGI stands for:

1. Control Graphics Interface
2. Common Graphics Interface

3. **Control Gateway Interface**
4. Common Gateway Interface Ans by naveed

DLU is:

1. Handle of a dialog
2. Handle of a modal dialog only
3. **Measure of distance within a dialog box**
4. Name of a dialog

Neither the user nor the application can make the owner window active until the _____ is destroyed.

1. Modeless dialog box
2. **Modal dialog box**
3. Child control
4. All of the given

When a menu item is clicked, _____ message is sent.

1. WM_MENUITEMCLICKED
2. WM_MENUCLICKED
3. **WM_COMMAND**
4. WM_PAINT

How many WM_CHAR messages will be generated when Shift+A key combination is pressed from keyboard and we haven't called TranslateMessage() before calling DispatchMessage() function?

- 0
- 1
- **2..??**
- 3

The total amount of storage available to all executing processes is the sum of

the physical memory and the free space on disk available to the paging file.

1. **True**
2. False

The Virtual Address Space of each process is much _____ then Physical memory.

1. lower
2. smaller
3. little
4. **larger**

The Virtual Address Space of size __GB is used by process and ___ GB is used by the System.

- 1
- **2**
- 3
- 4 By Naveed

The System uses the Virtual Address Space From ____ to_____.

1. 0x000000000x00000000
2. **0x800000000xFFFFFFFF**
3. 0x7FFFFFFF0xFFFFFFFF
4. 0x000000000x7FFFFFFF

The process can use a space from _____ to _____.

1. 0x000000000x00000000
2. 0x000000000xFFFFFFFF
3. 0x7FFFFFFF0xFFFFFFFF
4. **0x000000000x7FFFFFFF**

The Virtual Address Space is divided into ____ partitions.

- **2**
- 3
- 4
- 5

The _____ Translates the Virtual Address to Physical Address.

1. Process
2. Processor
3. **Operating System**
4. Virtual System

A _____ is an internal data structure used to translate virtual address into corresponding

physical addresses.

1. Fiber
2. **Page Map**
3. paging file
4. pages

The Virtual Address used by a process represents the actual physical location of an object in memory.

1. True
2. **False**

In 32bit MS Windows each _____ have its own Virtual Address Space.

1. **Process**
2. Thread
3. Fiber
4. None of the Above

A thread can access only the virtual address space of a process that belongs to it.

1. **True**
2. False

A process in a 32bit MS Windows can have addressing up to ___ of memory.

- 1
- 2
- 3
- **4**

A _____ runs in the context of a thread.

1. Process
2. Thread
3. Fiber Ans by naveed
4. **None of the Above**

A _____ runs in the context of a process.

1. Sub Process
2. **Thread** Cnfmed by naveed
3. Fiber
4. None of the Above

A _____ is a unit of execution that must be manually scheduled by the application.

1. Process
2. Thread
3. **Fiber**
4. None of the Above

A _____ is the basic unit to which operating system allocates the processor time.

1. Process
2. **Thread**
3. Fiber
4. None of the Above

The Operating System allocates the processor time to **_____.**

1. Process
2. **Thread**
3. Fiber
4. None of the Above

One or more ____ can be run in the context of a process.

1. Process
2. **Thread**
3. Fiber
4. None of the Above

A _____ is an executing program.

1. **Process**
2. Thread
3. Fiber
4. None of the Above

There cannot be multiple _____ messages in message queue.

1. **WM_PAINT**

2. WM_TIMER
3. WM_QUIT
4. WParam

In Windows every running application is a _____

1. Pointer
2. **Process**
3. Array
4. List

What will be the entry point to a Windows program?

1. **WinMain**
2. Main
3. Java.main
4. System.main

Name of Two dimensional array is the address of _____

1. First Column
2. **First Row**
3. Last Row
4. Last Column

Windows common controls are implemented in

1. Kernel32.dll
2. **Comctl32.dll**
3. User32.dll
4. Gdi32.dll

The application can load its resources when res file is compiled

1. **res file is linked to the executable file**
2. rc file is compiled and but not linked yet
3. resource.h file is included
4. None of the above

It is not possible to define our own window messages.

1. True
2. **False**

What information about the resources is placed in resource.h?

1. **Definitions**
2. Data structures
3. Identifiers
4. Editors
5. Size

Child window is confined to its parent's client area only.

1. **True**
2. False

WM_INITDIALOG message is sent by the system:

1. **Before creating the dialog**
2. Before creating dialog and after displaying it
3. After creating and displaying the dialog
4. After creating the dialog and before making it visible
5. None of the above

Identify the function which is used to change an existing item of the menu at run time

1. AppendMenu
2. InsertMenu
3. **SetMenuItemInfo**
4. ChangeMenu
5. AddMenuItemInfo

What is the first step the application should do to draw, in a window without using WM_PAINT message?

1. Quit device context
2. Release device context
3. **Retrieve device context**
4. Outline the shape to be drawn
5. Set the background color of the window

When a dialog box is created which one of the following messages is generated?

1. WM_CREATE
2. WM_DIALOGCREATE

3. **WM_INITDIALOG**
4. WM_COMMAND
5. WM_DIALOGCOMMAND

TreeView control is created using:

1. CreateWindow function
2. **CreateWindowEx function**
3. CreateControl function
4. None of the given options
5. CreatTreeView function

Which of the following is an application defined message:

1. WM_COMMAND
2. WM_SYSCOMMAND
3. WM_CREATE
4. WM_QUIT
5. **WM_USER**

We cannot convert the _____ into _____.

1. Screen co-ordinates, client area co-ordinates
2. Client area co-ordinates, screen co-ordinates
3. Non-Client area co-ordinates, screen co-ordinates
4. Screen co-ordinates, non-client area co-ordinates

Which of the following is compulsory about a keyboard accelerator?

1. accelerator must start with "ID_".
2. Accelerator and corresponding menu item must have identical identifiers.
3. You must not write DISCARDABLE in the resource script of accelerator.
4. **all of given???**

What will be the icon of shortcut of executable file of an application that has no

icon resource?

1. **Default Window .exe file icon**
2. Each application must have at least one icon
3. No icon
4. Visual C++ icon

A window receives this message when the user chooses a command from the window menu

1. WM_MENUSELECT
2. WM_MENUDRAW
3. WM_MENUNOTIFY
4. **WM_SYSCOMMAND**

All threads share the

1. Virtual Address space
2. Global variables
3. Operating system resources of their respective processes
4. **All of given options**

On which machines the scheduler can move individual threads to different processors to "balance" the CPU load.

1. Miniprocessor
2. **Multiprocessor**
3. Doubleprocessor
4. None of given options

_____ is/are Pre-defined GDI object(s) in Windows.

1. Pens
2. Brushes
3. Fonts
4. **All of the**

Synchronization objects allow other threads to use the shared data at the same

1 True
2 **False**

When an application has finished using the services of the WS2_32.DLL, the application or DLL must call _____ to allow the WS2_32.DLL to free any resources for the application.

1 **WSACleanup(…)**
2 WSAClose(…)
3 WSAUnBind(…)WSAUnBind(…)

The _____ function initiates use of WS2_32.DLL by a process.

1 WSInit(…)
2 WSInitialize(…)
3 WSBindSocket(…)
4 **WSAStartup(…)**

The state of a semaphore object is _____ when its count is greater than zero and _____ when its count is equal to zero

1. No signaled, signaled
2. **Signaled, non signaled**
3. Created, destroyed
4. destroyed, created

The _____ function sends data on a connected socket

1. Dispatch( )
2. Transmit( )
3. **Send( )**
4. Broadcast( )

The _____ function retrieves host information corresponding to a host name from a host database.

1 **Gethostbyname**
2 Sockaddr
3 Getsockname
4 WSAEventSelect

HTTP is stateless protocol

1 **True**
2 False

An owner-drawn button is painted by the application, not by the system

1 **True**
2 False

In which form all resources are stored in the resource table.

1 Readable Code
2 Binary form

3 Structural data
4 None of the given…?

A critical section object can be owned by exactly two threads at a time

1 True
2 False

Which one of the following is very useful for localization?

1. Multithreading
2. **Resource only DLLs NOT SURE**
3. Multitasking
4. Icons

A child window is always appears within the client area of its parent window.

1. **True**
2. False

The _____ function associates a local address with a socket.

1. **bind(…)**
2. connect(…)
3. attach(…)
4. getSocket(…)

The error code _____ Indicates that the underlying network subsystem is not ready for network communication.

1. WSAEINPROGRESS
2. WSAEPROCLIM
3. **WSASYSNOTREADY**
4. WSAEFAULT

To create a thread which is initially in suspended state, we should:

1. Create thread by calling __beginthread function
2. Call ExitThread API immediately after creating thread
3. **Give CREATE_SUSPENDED flag in CreateThread**
4. It is impossible

When we use PostThreadMessage for a thread that has not message queue then:

1. Nothing will happen

2. It will cause a run time error
3. Thread will resume processing
4. **Its message queue will be created**

The _____ function releases a device context, freeing it for use by other applications.

1. FreeDC
2. GetDC
3. DeleteDC
4. **ReleaseDC**

HTML is a _____Language

1 Multiset Encryption
2 **Mark-up**
3 Micro Level
4 None of given options

Line can be drawn using _____ Functions

1. **MoveToEx and LineTo**
2. SelectPts and DrawLine
3. SelectPts and DrawPOLY
4. None of the giving options

If a window owns child Windows, and we destroy owner Window then _____.

1. Only owner window will be destroyed
2. Only its owned window will be destroyed
3. **Both owner and owned Windows will be destroyed**
4. The application will be crashed

A thread _____

1. is a path of execution through a program
2. is smallest unit of execution that Win32 schedules
3. consists of a stack
4. **All of given options**

Consider the following statements written in a DLL:

__declspec (dllexport) int Factorial(int);

int Average(int, int);

Which of the following statements is true about the above statements?

1. Factorial() and Average() are 2 public functions of the DLL
2. Average() is the only public functions of the DLL
3. Factorial()is the only public functions of the DLL
4. This DLL does not have any public functions

RFC stands for

1. **Request for comments**
2. Request of connects
3. Reference for connect
4. Request for cancels

double *ptr is pointer variable which stores double type address.

1. **True**
2. False

Whenever a window is resized, system sends "WM_SIZING" message to the application that owns the window

1. **True**
2. False

The _____ function draws a rectangle

1. SetRectCoords(...)
2. ShowRectangle(...)
3. DrawRectangle(...)
4. **Rectangle(...)**

Menu resource should be associated with a window while:
1. **Creating window**
2. Registering window
3. Repainting window
4. Creating or registering window
5. Destroying window

When a thread terminates, the thread object attains _____ state

1. **Signaled**
2. Blocked
3. Resumed
4. Non-signaled

If we press a normal key from keyboard, the number of byte(s) sent to keyboard buffer

➢ 1
➢ **2 Not sure**
➢ 3

32-bit Microsoft Windows, there is very low chance of device drivers getting corrupted because:

1   Win-32 allows multi-threading
2   **Each process cannot access the virtual address space of some other process**
3   Each thread has its own stack
4   Context switching mechanism is very good

A process consists of _____

1. one or more threads
2. code
3. data
4. **All of given options**

GDI provides developers auto variable automatic initialize by **zero**

GDI environment has limited colors (virtual, **physical**,logical,default)

stack revers command do the following with stack (washed,**update***,insert, replace)

OS has many type of windows ..(**classes**, array, queue, pointers)

A window can have many children and may or may not have one(thread, process, **parent**,subprocess)

Function finds window with given class name or window name(**find window**)

int *ptr (**integer value**)

we can use as an alternative method of commenting out code (**#if**)

To show window on screen API is used (**Display window**)

All share virtual address space (function, local variable , process. **Threads**,)

is used normally in word processing applications (Multicasting, Single threading,

single casting, **Multithreading**)

The _____ function draws a rectangle

1. SetRectCoords(...)
2. ShowRectangle(...)
3. DrawRectangle(...)
4. **Rectangle(...)**

_____ defines a class that adds new functionality to a predefined Window class

1. Sub-Classing
2. Coupling
3. **Super-Classing**
4. None of given options

Solved Subjective

Error code	Meaning
WSASYSNOTREADY	Indicates that the underlying network subsystem is not ready for network communication.
WSAVERNOTSUPPORTED	The version of Windows Sockets support requested is not provided by this particular Windows Sockets implementation.
WSAEINPROGRESS	A blocking Windows Sockets 1.1 operation is in progress.
WSAEPROCLIM	Limit on the number of tasks supported by the Windows Sockets implementation has been reached.
WSAEFAULT	The *lpWSAData* is not a valid pointer.

How can I use the CopyTo method of the Windows Forms controls collection to copy controls into an array? (3)

Answer:-

The CopyTo method will take the current controls collection and copy all the controls into an array. In order to use it, you must specify the array and the starting point. For instance, the following code copies the controls to the MyArrayOfControls array starting at the first element

Differentiate pen &brush?

Answer:-

PEN	Brush
A pen is a graphics tool that an application for Microsoft Windows uses to draw lines and curves	A brush is a graphics tool that a Windows based application uses to paint the interior of polygons, ellipses, and paths
Pens to draw freehand lines, straight lines, and curves.	brushes use to paint shapes
pens to designate trends in graphs and to outline bar graphs and pie charts	Brushes to paint the sections of pie charts and the bars in bar graphs.

It is sometimes more efficient for an application to draw directly in a window without relying on the WM_PAINT message. How this task can be accomplished (i.e. how can we draw in a window directly without using WM_PAINT message)? (5)

Answer:-

The task can be accomplished which is given below:-

This can be useful when the user needs immediate feedback, such as when selecting text and dragging or sizing an object. In such cases, the application usually draws while processing keyboard or mouse messages.

To draw in a window without using a WM_PAINT message, the application uses the GetDC or GetDCEx function to retrieve a display device context for the window. With the display device context, the application can draw in the window and avoid intruding into other windows. When the application has finished drawing, it calls the ReleaseDC function to release the display device context for use by other applications. application draws a selection and an intervening WM_PAINT message occurs, the application must ensure that any drawing done during the message does not corrupt the selection. To avoid this, many applications remove the selection, carry out usual drawing operations, and then restore the selection when drawing is complete

How Windows keep track of the files? (3)

Answer:-

The system requires instance handles to keep track of all modules. The system assigns a handle to each copy of a running executable or .dll.

Can you write a class without specifying namespace? Which namespace does it belong to by default? (2)

Answer:- ???

Yes, you can, and then the class belongs to global namespace which has no name. For commercial products, naturally, you wouldn't want global namespace.

how many kinds of macros are there?

Answer:-

There are two kinds of macros.

1. Object-like macros resemble data objects when used,
2. Function-like macros resemble function calls.

What are the GDI environment working space names?

Answer:-

In the GDI environment there are two working spaces

1. Logical
2. Physical

List down three Pre-Defined GDI objects in window

Answer:- Pre-defined GDI objects in Windows are:

- Pens
- Brushes
- Fonts
- Palettes

what are macros and its types? Explain it with example.

Answer:-

There are two kinds of macros.

1. Object-like macros resemble data objects when used,
2. Function-like macros resemble function calls.

Example:-

Here's a macro that computes the maximum of two numeric values:

#define min(X, Y) ((X)>(Y) ? (X) : (Y))

Explaination:

To define a macro that takes arguments, you use the #define command with a list of parameters in parentheses after the name of the macro. The parameters may be any valid C identifiers separated by commas at the top level (that is, commas that aren't within parentheses) and, optionally, by white-space characters. The left parenthesis must follow the macro name immediately, with no space in between

briefly defines Modal Loop?

Answer:-

Modal loop is run by Modal dialogs and process message as does application message loop. That's why program execution is transfer to modal loop so the modal loop itself gets messages and dispatch message.

Write windows Programming control process?

Answer:-

1. Edit Control
2. Static Control

Explain Pointer to Constant, and constant to Painter?

Answer:-

Constant pointer to variable data:

char * const ptr = buff.   // constant pointer to variable data

*ptr = 'a';

ptr = buff2;   // it will be an error

since we have declared ptr as a "constant pointer to variable data", so we can change the contents of the place where ptr is pointing at, i.e. data but being a constant variable, the ptr value i.e. the address it contains cannot be modified.

Variable pointer to Constant data:

const char * ptr = buff.   //variable pointer to constant data

*ptr = 'a';   // it will be an error

ptr = buf2;

Write the complete syntax or "get parent function"

Answer:-

GetParent function returns the parent handle of the specified child. This function will be useful when the parent of the child window to use.

Syntax::

HWND GetParent

(

HWND hWnd   // handle to child window

);

Types of assertion and name them?

Answer:-

There are three types of assertion:

1 **Preconditions**
- Specify conditions at the start of a function.
2 **Post conditions**
- Specify conditions at the end of a function.
3 **Invariants**
- Specify conditions over a defined region of a program

Write the characteristics of child windows?

Answer:-

Following are the characteristics of child windows.

- A child window always appears within the client area of its parent window.
- Child windows are most often as controls.
- A child window sends WM_COMMAND notification messages to its parent window.
- When a child window is created a unique identifier for that window is specified in hMenu parameter of CreateWindow()

what will happen if GetUpdateRect returns zero?

Answer:-

An application should call the GetUpdateRect function to determine whether the window has an update region. If GetUpdateRect returns zero, the application should not call the BeginPaint and EndPaint functions.

Define Client area?

Answer:-

The client area is the part of a window where the application displays output, such as text or graphics. For example, a desktop publishing application displays the current page of a document in the client area. The application must provide a function, called a window procedure, to process input to the window and display output in the client area.

WIN MAIN describe with detail

Answer:-

WinMain is the starting point in Every Win32 GUI programs. WinMain has four

Parameters these are,

1. First is instance of the current application.
2. Second parameter is also an instance of this application which is used for the previous application of the same type that is already running. It is used only in Window 16bit editions or Windows 3.1. Windows 32bit editions do not support this parameter. It is here just for compatibility.

3. Third parameter is a command line argument of string type which is a type defined as char *.
4. Fourth parameter is windows style.

Message queues of each application (2)

Answer:-

An application must remove and process messages posted to the message queues of its threads

Paint function usage (3)

Answer:-

Paint function performs following tasks.

- The BeginPaint() function prepares the specified window for painting and fills a PAINTSTRUCT structure with information about the painting.
- BeginPaint() first erases the background of window's client area by sending WM_ERASEBKGND message.
- If the function succeeds, the return value is the handle to a display device context for the specified window.

Differentiate Desktop Window and Application Window

Answer:-

Desktop Windows	Application Windows
When you start the system, it automatically creates the desktop window. The desktop window is a system-defined window	When you start an application, the system also associates a taskbar button with the application. The taskbar button contains the program icon and title
uses a bitmap to paint the background of the screen	Most applications also create other windows, either directly or indirectly, to perform tasks related to the main window
A system configuration application, such as a Control Panel item, changes the desktop wallpaper by using the System Parameters Info	An application window includes elements such as a title bar, a menu bar, the window menu (formerly known as the system menu),

function	

show the implementation of _cdecl calling convolution with respect to (5)

1: Argument passing order.

2: stack maintenance responsibility.

3: name decoration convention.

Answer:-

1. **Argument-passing order**= Right to left
2. **Stack-maintenance responsibility** = Calling function pops the arguments from the stack .
3. **name decoration convention.=** Underscore character (_) is prefixed to names

A window may have more than one windows inside it explain the line(2)

Answer:-

A Window may further contain more windows inside it. For example let's take a calculator; A calculator contains more windows in forms of buttons, radio buttons and check boxes.

- Every Window has its parent and zero or more siblings.
- Top level window has desktop as its parent.

What is the function of ws_paint in Windows class(3)

Answer:-

DispatchMessage function to a window procedure when the application obtains a WM_PAINT message from message Queue by using the GetMessage or PeekMessage functions.

Message queuing 2 marks

Answer:-

Message Queue is created when every any GDI function call is made or send message or post Message function calls are made. Message Queue can be attached to every thread either it is User interface thread or worker threads. User Interface threads always a message queue

Kernel tasks 3marks

Answer:-

Kernel is a main module of the operating system. This provides system services for managing threads, memory, and resources.

Kernel has to perform very important responsibilities e.g.

1. Process Management
2. File Management
3. Memory Management (System and Virtual Memory)

Difference between __stdcall and __cdecl calling convention

Answer:-

cdecl and __stdcall just tells the compiler whether the called function or the calling function

cleans up the stack. In __stdcall calling convention, the called function cleans up the stack when it is about to return. So if it is called in a bunch of different places, all of those calls do not need to extra code to clean up the stack after the function call.

In __cdecl calling convention, it is the caller function that is responsible for cleaning the stack,so every function call must also need to include extra code to clean up the stack after thefunction call.

Erase window function explanation 5marks

Answer:-

Erase windows uses the GetClipBox function to retrieve the logical coordinates of the area to erase and passes these coordinates to the FillRect function. Applications that process these messages can use similar techniques. The system supplies a window device context with the WM_ICONERASEBKGND message regardless of whether the corresponding window has a private device context.

Clipboard Working 3mraks

Answer:-

In Windows, data is shareable among applications. We can use it for copying the data from one file to the other in same format.e.g from notepad to MS Word.. All the text or image data you have previously copied can now be pasted in other application.

write down complete syntax of "getDC" function?(2)

Answer:-

The system retrieves a device context from the cache whenever an application calls the GetDC

or BeginPaint function; the system returns the DC to the cache when the application subsequently calls the ReleaseDC or EndPaint function.

infinite recursion (3)

Answer:-

Infinite recursion is an infinite loop in a computer program that is caused by recursion. This revised function will only run out of stack space if (n − 1) or n is too large. It can happen either due to the loop having no terminating condition, having one that can never be met, or one that causes the loop to start over.

what is stack? (2)

Answer:-

stack is the place where the processor also places the temporary pointer to the code following the call, so it knows where to continue after the call was done, or you pass some of them in registers. Floating point values can also be passed on the stack of the coprocessor.

what is external storage class?

Answer:-

Extern defines a global variable that is visible to all object modules. When you use 'extern' the variable cannot be initialized as all it does is to point the variable name at a storage location that has been previously defined

An application can set up for itself any logical coordinates system, using API. Write down any two.(3)

Answer:-

There are two types of brushes: logical and physical. A logical brush is one that you define in code as the ideal combination of colors and/or pattern that an application should use to paint shapes. A physical brush is one that a device driver creates, which is based on your logical-brush definition.

what happened if an application does not process WM_ErasebkGrd massages but pass it defWindowProcs.(5)

Answer:-

If it processes **WM_ERASEBKGND**, the application should use the message's *wParam* parameter to draw the background. This parameter contains a handle to the display device context for the window. After drawing the background, the application should return a nonzero value. This ensures that **BeginPaint** does not erroneously set the **fErase** member of the **PAINTSTRUCT** structure to a nonzero value (indicating the background should be erased) when the application processes the subsequent **WM_PAINT** message.

An application can define a class background brush by assigning a brush handle or a system color value to the **hbrBackground** member of the **WNDCLASS** structure when registering the class with the **RegisterClass** function. The **GetStockObject** or **CreateSolidBrush** function can be used to create a brush handle. A system color value can be one of those defined for the **SetSysColors** function. (The value must be increased by one before it is assigned to the member.)

Define "Virtual-Key" message -   2 Marks

Answer:-

virtual-key code is a device-independent value defined by the system that identifies the purpose of a key. After translating a scan code, the keyboard layout creates a message that includes the scan code, the virtual-key code, and other information about the keystroke, and then places the message in the system message queue.

Differentiate between Super Classing and Sub Classing.   3 Marks

Answer:-

SuperClassing	SubClassing
Super-classing defines a class that	*Subclassing is allowed only within a*

adds new functionality to a predefined window class,	*process.*
Button or list box controls.	Win32 processes have separate address spaces
Superclassing involves creating a new class that uses the window procedure of an existing class for basic functionality.	*An application cannot subclass a window or class that belongs to another process.*

what are the entries in the parent process table and child table? 2

Answer:- It means that the handle value that identifies a kernel object is identical in both the parent and the child processes

Define instance Handle? Briefly explain

Answer:- This member is Application instance handle. The system requires instance handles to keep track of all modules. The system assigns a handle to each copy of a running executable or .dll. The system passes an instance handle to the entry-point function of each executable. The executable or .dll assigns this instance handle to the class by copying it to the hInstance member of the WNDCLASSEX structure.

Write down the code c/c++ program that has 2 functions on take 4 integer variable as parameters and return their sum and other take 4 integer as arguments and return their multiplication.

Answer

#include <stdio.h>

// prototypes, the parameter names are optional,

// print the menu and obtains a selection

int GetChoice();

// inserts a number in the sorted array.

int AddNum (int num[], int sz);

// removes a number from the array.

```
int DelNum(int num[], int sz);

// prints out the sorted array
void PrintNums(int num[], int sz);


void main()
{
    // the number of elements in array A[]
    int Size = 0,
    // the array that will keep its numbers sorted
    A[20],
    // the selection made from the menu
    Selection;

    // keep doing this loop until a 4 or Quit is
    // selected from the menu...
    Selection = GetChoice();
    for( ; Selection != 4; )
    {
        if(Selection == 1)
            Size = AddNum(A, Size);
        else
            if(Selection == 2)
                Size = DelNum(A, Size);
            else
```

```c
            PrintNums(A, Size);

        Selection = GetChoice();

    }

}


// assuming that user will enter only a valid int

int GetChoice()

{

    int Choice;


    printf("Enter 1 - Insert, 2 - Delete, ");

    printf("3 - List and 4 - Quit:  ");

        scanf_s("%d", &Choice);

        return Choice;

}


int AddNum(int Num[ ], int sz)

{

    // local variables...

    int i, j, Number;

    // gets the number to insert

    printf("What number to insert? ");

    scanf_s("%d", &Number);

    // finds the place (i) to put the new number
```

```c
        for(i = 0; i < sz; ++i)

            if(Number < Num[i])

                break;

        // shift the rest of the array by moving

        // the numbers up by one slot.

        for(j = sz; j > i; --j)

            Num[j] = Num[j - 1];

        // place the new number

        Num[i] = Number;

        // the array size is incremented

        // and return to the calling function

        return ++sz;

}


// assuming that the deleted item exists

int DelNum(int Num[], int sz)

{

    // local variables...

    int i, Number;

    // gets the number to be deleted

    printf("What number are you going to delete? ");

    scanf_s("%d", &Number);

    // find the place in the array to be deleted

    for(i = 0; i < sz; ++i)
```

```c
        if(Number == Num[i])

            break;

    // the array size is decremented

    --sz;

    // shift the rest of the array by moving the numbers

    // down by one slot

    for( ; i < sz; ++i)

        Num[i] = Num[i + 1];

    // return sz to the calling function

    return sz;

}


void PrintNums(int Num[ ], int sz)

{

    // local variable...

    int i;


    for(i = 0; i < sz; ++i)

        printf("Num[%d] = %d\t", i, Num[i]);

    printf("\n");

}
```
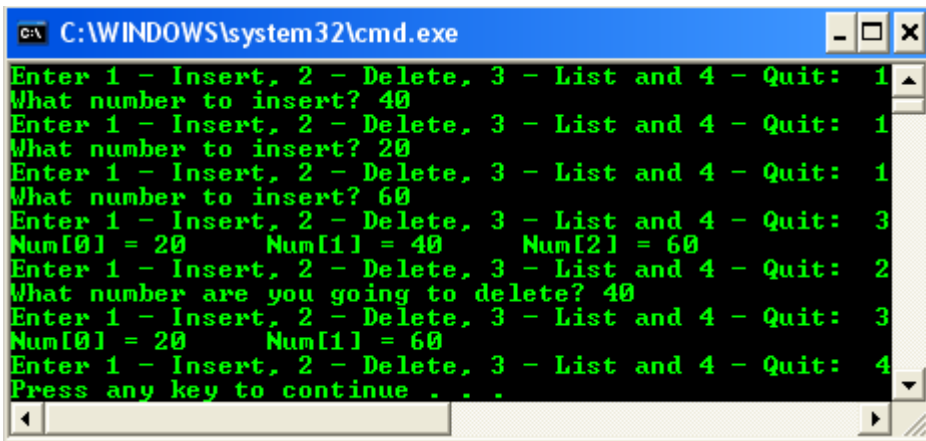
Output of this Program

Write two macros that perform the same tasks as these functions perform? 5

Answer:-

A *macro* is a fragment of code which has been given a name. Whenever the name is used, it is replaced by the contents of the macro. There are two kinds of macros. They differ mostly in what they look like when they are used. *Object-like* macros resemble data objects when used, *function-like* macros resemble function calls.

You may define any valid identifier as a macro, even if it is a C keyword. The preprocessor does not know anything about keywords. This can be useful if you wish to hide a keyword such as const from an older compiler that does not understand it. However, the preprocessor operator defined can never be defined as a macro, and C++'s named operators cannot be macros when you are compiling C++.

To define a macro that takes arguments, you use the #define command with a list of parameters in parentheses after the name of the macro. The parameters may be any valid C identifiers separated by commas at the top level (that is, commas that aren't within parentheses) and, optionally, by white-space characters. The left parenthesis must follow the macro name immediately, with no space in between.

For example, here's a macro that computes the maximum of two numeric values:

#define min(X, Y) ((X)>(Y) ? (X):(Y))

Two common controls in window programming

Answer:-

Common controls are of these types.

1. Date Time Picker Control.
2. List View Control.

Write at least two tasks performed by BeginPaint () function?   3

Answer:-

1. The BeginPaint() function prepares the specified window for painting and fills a PAINTSTRUCT structure with information about the painting.
2. BeginPaint() first erases the background of window's client area by sending WM_ERASEBKGND message.

about _cdecl calling convention?

Answer:-

The __cdecl is the default calling convention for C programs. In this calling convention, the stack is cleaned up by the caller. The __cdecl calling convention creates larger executables than __stdcall, because it requires each function call to include stack cleanup code.

 December 9, 2012 at 6:51pm

Implicit type casting has further two types? write the names

Implicit type casting (coercion) is further divided in two types

1. Promotion
2. Demotion

Describe the window procedure.

The window procedure processes messages for all windows of that class and therefore, controls their behavior and appearance. Every class needs a window-procedure address to define the entry point of the window procedure used to process all messages for windows in the class. The system passes messages to the procedure when it requires the window to carry out tasks, such as painting its client area or responding to input from the user. A process assigns a window procedure to a class by copying its address to the lpfnWndProc member of the WNDCLASSEX structure.

 Write the structure of the PAINTSTRUCTURE

The PAINTSTRUCT structure contains information for an application. This information can be used to paint the client area of a window owned by that application.

typedef struct tagPAINTSTRUCT {

 HDC hdc;   //Handle to the DC

 BOOL fErase;   //erase back ground of this parameter is true//

RECT rcPaint;   //rectangle to the invalidate region//

BOOL fRestore;

BOOL fIncUpdate;   //updation true/false

BYTE rgbReserved[32];   //rgb values

} PAINTSTRUCT, *PPAINTSTRUCT;

hdc =Handle to the display DC to be used for painting.

fErase = Specifies whether the background must be erased. This value is nonzero if the application should erase the background. The application is responsible for

erasing the background if a window class is created without a background brush.

For more information, see the description of the hbrBackground member of the

WNDCLASS structure.

rcPaint =Specifies a RECT structure that specifies the upper left and lower right corners of the rectangle in which the painting is requested, in device units relative to the upper-left corner of the client area.

fRestore , fIncUpdate , rgbReserved = Reserved; used internally by the system.

Two type of Subclassing write only name ..3

1. Instance Subclassing and
2. Global Subclassing

Type of Threads? 3

1. User-Interface Thread

2. Worker Thread

Define a Function Pointer   5

Function Pointers are pointers, i.e. variables, which point to the address of a function.

Examles:

   int (*pt2Function)   (float, char, char);

It points to a function, which take one float and two char and return an int.

write syntax of WM_ PAINT   5

As Windows sends a WM_PAINT message for repainting a window. So first it will begin painting and then ends…

HDC **BeginPaint**(

HWND hwnd,   // handle to window

LPPAINTSTRUCT lpPaint // paint information

);

 hwnd: Handle to the window to be repainted.

lpPaint: Pointer to the PAINTSTRUCT structure that will receive painting information.

BOOL **EndPaint**(

  HWND hWnd,   // handle to window

  CONST PAINTSTRUCT *lpPaint // paint data

);

hWnd: Handle to the window that has been repainted.

lpPaint: Pointer to a PAINTSTRUCT structure that contains the painting information

retrieved by BeginPaint.

This function is required for each call to the BeginPaint() function, but only after painting

is complete.

Draw an ellipse with the help of pen and brushes also paint them.tips use HWND and DC format?(5)

case CIRCLE:

hBrush = CreateHatchBrush(HS_DIAGCROSS, RGB(170, 150, 180));

SelectObject(hDC, hBrush);

Ellipse(hDC, 70, 10, 210, 150);

DeleteObject(hBrush);

break;

December 14, 2012 at 12:34pm

Write two responsibilities of GDI? 2

GDI is responsible to display application's graphics objects on Screen and Printer.

GDI provides the suitable device independent interface. In GDI subsystem, there's Device context or DC. to display something.

GDI is implemented in the form of library GDI32.dll. This library contains all the APIs

that need to draw graphics or text objects. We can write text, and draw rectangles,

polygons, lines, points, etc by using Pens and Brushes:

Define process? 2

If you write a program and run it, this running program will be known as a process running in memory.

write three action when application changes in subclasses 3

1. **pass** the message to the original window procedure;
2. **modify** the message and pass it to the original window procedure;
3. **not pass** the message.

Define the names of resource-definition statements' categories?

The resource-definition statements can be divided into the following categories:

• Resources

• Controls

• Statements

Explain the basic difference(s) between a message box and a dialog box.

A message box is a special dialog box that displays a note, caution, or warning to the user. For example, a message box can inform the user of a problem the application has Encountered while performing a task.

A dialog box is a window that contains one or more controls. An application uses a dialog box to prompt the user for input needed to complete a command. For example, an application that includes a command to open a file would display a dialog box that includes controls in which the user specifies a path and file name.

Before you create an application window, you must register a window class by calling RegisterClass. This function requires a single parameter. What is that parameter and how will be the syntax of the structure?

Answer:

The function requires a structure of type WNDClass as parameter. This structure includes two fields that are pointers to character strings, so the structure is defined two different ways in the WINUSER.H header file. First, there's the ASCII version, WNDCLASSA:

typedef struct tagWNDCLASSA

{

UINT style ;

WNDPROC lpfnWndProc ;

int cbClsExtra ;

int cbWndExtra ;

HINSTANCE hInstance ;

HICON hIcon ;

HCURSOR hCursor ;

HBRUSH hbrBackground ;

LPCSTR lpszMenuName ;

LPCSTR lpszClassName ;

}

WNDCLASSA, * PWNDCLASSA, NEAR * NPWNDCLASSA, FAR *

LPWNDCLASSA ;

In GDI two working space . just give name

1. Client area
2. Nonclient area

What is the function of ws_paint in Windows class.........(3)

WM_PAINT tells the window procedure that the window's client area has changed and must be repainted**.**

what is extern storage class?3()

Extern defines a global variable that is visible to all object modules. When you use

'extern' the variable cannot be initialized as all it does is to point the variable name at a

storage location that has been previously defined.

With extern keyword, we are actually pointing to such a variable that is already been

defined in some other file.

Q5: what happened if an application does not process WM_ErasebkGrd massage but pass it defWindowProcs.(5)

The DefWindowProc function validates the update region. The function may also send

the WM_NCPAINT message to the window procedure if the window frame must be

painted and send the WM_ERASEBKGND message if the window background must be

erased.

1) make a program of hello world in which window show message of Hello world?(5)

```cpp
// SPRING2013_CS410_3_PC130200244.cpp : Defines the entry point for the application.


/*      Pre-processor directives*/
#include "stdafx.h"
#include <windows.h>


LRESULT CALLBACK WndProc(HWND, UINT, WPARAM, LPARAM);

bool isCurrentlyMaximized;

    PAINTSTRUCT paintStruct;
    /*      Device Context*/

    HDC hDC;
    /*      Text for display*/

    char temp[] = "HELLO WORLD";
    //char szClassName[ ] = "WindowsApp";
    /*      Switch message, condition that is met will execute*/


/*      Main function*/


int WINAPI WinMain(HINSTANCE hInstance,
        HINSTANCE hPrevInstance,
        LPSTR    lpCmdLine,
        int     nCmdShow)


{
    WNDCLASSEX  windowClass;            //window class
    HWND            hwnd;               //window handle
    MSG             msg;                //message
    //MSG               msg1;
    bool        done;                   //flag saying when app is complete
```

```c
/*      Fill out the window class structure*/
windowClass.cbSize = sizeof(WNDCLASSEX);
windowClass.style = CS_HREDRAW | CS_VREDRAW;
windowClass.lpfnWndProc = WndProc;
windowClass.cbClsExtra = 0;
windowClass.cbWndExtra = 0;
windowClass.hInstance = hInstance;
windowClass.hIcon = LoadIcon(NULL, IDI_APPLICATION);
windowClass.hCursor = LoadCursor(NULL, IDC_ARROW);
windowClass.hbrBackground = (HBRUSH)GetStockObject(BLACK_BRUSH);
windowClass.lpszMenuName = NULL;
windowClass.lpszClassName = "MyClass";
windowClass.hIconSm = LoadIcon(NULL, IDI_WINLOGO);
/*      Register window class*/
if (!RegisterClassEx(&windowClass))
{
        return 0;
}

/*      Class registerd, so now create window*/
hwnd = CreateWindowEx(NULL,                  //extended style
        "MyClass",                   //class name
        "Hello World",               //app name
        WS_OVERLAPPEDWINDOW |          //window style
        WS_VISIBLE |
        WS_SYSMENU,
        400,200,                     //x/y coords
        400,400,            //width,height
        NULL,                        //handle to parent
        NULL,                        //handle to menu
        hInstance,                   //application instance
        NULL);                           //no extra parameter's



/*      Check if window creation failed*/
if (!hwnd)
        return 0;

done = false; //initialize loop condition variable
/*      main message loop*/
```

```
    while(!done)
    {
            PeekMessage(&msg,NULL,NULL, NULL,PM_REMOVE);

                    if (msg.message == WM_QUIT) //check for a quit message
            {

                    done = true;
                    }

            else
            {

                    /*      Translate and dispatch to event queue*/
                    TranslateMessage(&msg);
                    DispatchMessage(&msg);
            }
    }
    return msg.wParam;

    /*  This function is called by the Windows function DispatchMessage()  */
}


    LRESULT CALLBACK  WndProc(HWND hwnd, UINT message, WPARAM wParam,
LPARAM lParam)
{
  switch (message)                /* handle the messages */
  {
    case WM_DESTROY:
      PostQuitMessage (0);       /* send a WM_QUIT to the message queue */
      break;


            //display the string on screen.
            case WM_PAINT:
                    PAINTSTRUCT ps;
    HDC hdc;
                    hdc=BeginPaint(hwnd,&ps);
                    RECT windowRect;

    GetWindowRect(hwnd,&windowRect);
```

```
                    FillRect(hdc, &windowRect,(HBRUSH)GetStockObject (BLACK_BRUSH));
                    RECT rc;
          GetClientRect(hwnd, &rc);


              SelectObject(hdc, GetStockObject(DEFAULT_GUI_FONT));
              SetBkMode(hdc, TRANSPARENT);

        SetTextColor(hdc, RGB(255,255,0));

                    //Creating custom font
                    HFONT hfont;
                    hfont = CreateFont( -18, 0, 0, 0, FW_NORMAL, 0,
          0, 0, 0, 0, 0, 0, 0, "Arial");
                    SelectObject(hdc, hfont);

          DrawText(hdc, temp, 11, &rc, DT_CENTER |DT_VCENTER | DT_SINGLELINE);
                    return 1;
```

2013 spring mid papers:

1. **define preprocessor directive . 2**

The preprocessor is a program that runs prior to compilation and potentially modifies a

source code file. It may add code in response to the #include directive, conditionally

include code in response to #if, #ifdef, #ifndef directives or define constants using the

#define directive. preprocessor commands are used to test if a preprocessor variable has

been "defined".

2. common controls in window programming

Common controls are of these types.

• Date Time Picker Control.

• List View Control.

Two task performed by "Begin Paint( )" Function.

Ans;

1. The BeginPaint() function prepares the specified window for painting and fills a PAINTSTRUCT structure with information about the painting.
2. BeginPaint() first erases the background of window's client area by sending WM_ERASEBKGND message.
3. If the function succeeds, the return value is the handle to a display device context for the specified window.

5. Types of Sub classing.

1. Instance subclassing
2. Global subclassing

Q2. SubClassing respond at which three manners when got message . (3 marks)

Ans:

1. **pass** the message to the original window procedure;
2. **modify** the message and pass it to the original window procedure;
3. **not pass** the message.

Q3.Make a statement of " Variable pointer to const data "(2 Marks)

Ans:

• Variable pointer to Constant data:

   const char * ptr = buff. //variable pointer to constant data

 *ptr = 'a';   // it will be an error

 ptr = buf2;

Here, ptr has been declared as "variable pointer to constant data". In this case, the data to

which the ptr is pointing to remains constant and cannot be modified after initialization.

The contents of ptr (address) are variable and we can change the contents of ptr.

How do i translate GETLASTERROR()into string ? (5 marks)

Asn:

GetLastError() returns an integer value, not a text message. We use FormatMessage to convert getlast error msg from a Win32 error code to string. This function retrieves the last

error code, if any, and gets the text message associated with it, which is then converted to a standard string and returned.

The main benefits of using this function is that it saves you from having to remember the syntax of FormatMessage, and that the memory reserved is tidied up.

Define briefly Group Box?

This style creates a rectangle in which other controls can be grouped. Any text associated

with this style is displayed in the rectangle's upper left corner.

Which are the three parts of name when using internet address family?

A name consists of three parts when using the Internet address family:

• The address family.

• A host addresses.

• A port number that identifies the application.

Synchronization objects?

Answer:-

A synchronization object is an object whose handle can be specified in one of the wait functions to coordinate the execution of multiple threads. More than one process can have a handle to the same synchronization object, making interprocess synchronization possible.

Define owner drawn items?

Answer:-Owner-drawn items require an application to take total responsibility for drawing selected, and cleared states.

Give two disadvantages of the DLL version

Answer:-???chk again

1. **Saves memory and reduces swapping.**
   Many processes can use a single DLL simultaneously, sharing a single copy of the DLL in memory.

2. **Saves disk space.**

int connect(SOCKET s,   const struct sockaddr* name,   int namelen);Define the all parameters

Answer:-

Parameters

Socket s: Descriptor identifying an unconnected socket.

const struct sockaddr* name :   Name of the socket in the **sockaddr** structure to which the connection should be established. sockaddr structure will read the compatibility problem statements by the use of IPv4 and IPv6.

Int namelen: Length of *name*, in bytes

Dynamic library that export DLL function "hello! You are here in DLL"

Answer:-

// c file .. mydll.c

#include <stdio.h>

int

hello()

{

  printf ("**hello! You are here in DLL**!\n");

}

First compile mydll.c to object code: gcc -c mydll.c

Then, tell gcc that it is building a shared library: gcc -shared -o mydll.dll mydll.o

you can now link to the dll with a simple program:

int

main ()

```
{
  hello ();
}
```

Then link to your dll with a command like: gcc -o myprog myprog.c -L./ -lmydll

Modeless dialog why we cannot use the control in parent

Answer:-

An application must not create a modal dialog box having the WS_CHILD style. A modal dialog box with this style disables itself, preventing any subsequent input from reaching the application.

Socket connect ?

Answer:-

The connect function establishes a connection to a specified socket.

```
int connect(
  SOCKET s,    // Descriptor identifying an unconnected socket.
  const struct sockaddr* name,   // Name of the socket in the sockaddr structure to which the connection should be established.//
  int namelen   // Length of name, in bytes  //
);
```

Return Values: If no error occurs, connect returns zero. Otherwise, it returns SOCKET_ERROR, and a specific error code can be retrieved by calling WSAGetLastError.

On a blocking socket, the return value indicates success or failure of the connection attempt.

With a nonblocking socket, the connection attempt cannot be completed immediately. In this case, connect will return SOCKET_ERROR, and WSAGetLastError will return WSAEWOULDBLOCK.

list box styles?

Answer:-

Window styles that control the appearance and operation of a list box List box items are sorted, arranged in multiple columns, drawn by the application, and so on.

There are two types of list boxes:

1. single-selection
2. multiple-selection.

Pointer arithmetic ?

Answer:-

Pointer Arithmetic deals with performing addition and subtraction operations on pointer variables.

- increment a pointer (++)
- decrement a pointer (--)
- Address in pointer is incremented or decremented by the size of the object it points to (char = 1 byte, int = 2 bytes, ...)

what is Bind Function?

Answer:-

The bind function associates a local address with a socket. it is used on an unconnected socket before subsequent calls to connect or listen functions. It is used to bind to either connection-oriented (stream) or connectionless (datagram) sockets. When a socket is created with a call to the socket function, it exists in a namespace (address family), but it has no name assigned to it. Use the bind function to establish the local association of the socket by assigning a local name to an unnamed socket.

What is the purpose of Pager control?

Answer:-

A pager control is a window container that is used with a window that does not have enough display area to show all of its content.

what is the Mean by Resource definition Statement?

Answer:-

The resource-definition statements define the resources that the resource compiler puts in the resource (.Res) file. After the .Res file is linked to the executable file, the application can load its resources at run time as needed.

why static variables are not destroyed when function returns

Answer:-

The static variable is not destroyed on exit from the function; instead its value is preserved, and becomes available again when the function is next called.

Some usages of Dialog?

Answer:-

1. Dialogs are important resource in windows. Most of the information in window are displayed in dialog boxes.
2. A dialog box is a temporary window an application creates to retrieve user input.
3. An application typically uses dialog boxes to prompt the user for additional information for menu items.
4. A dialog box usually contains one or more controls with which the user enters text, chooses options, or directs the action.
5. Windows also provides predefined dialog boxes that support common menu items such as Open and Print.
6. Applications that use these menu items should use the common dialog boxes to prompt for this user input, regardless of the type of application.

.

what is the purpose of Hot Key?

Answer:-

A hot key is a key combination that generates a WM_HOTKEY message, a message the system places at the top of a thread's message queue, bypassing any existing messages in the queue. Applications use hot keys to obtain high-priority keyboard input from the user. For example, by defining a hot key consisting of the CTRL+C key combination, an application can allow the user to cancel a lengthy operation.

Unregister the Class function

Answer:-The process must destroy all windows using the class before the .dll is unloaded and call the UnregisterClass function.

What happen if we use DEFwinPRoc instead of dialog procedure in dialog.

Answer:-

if you call any function that results in your dialog procedure receiving a window message, the nested window message could overwrite the return value you set using DWL_MSGRESULT.

Enumeration increase level of abstraction?

Answer:-

C++ uses the enum statement to assign sequential integer values to names and provide a type name for declaration. The enum declaration creates a new integer type. By convention the first letter of an enum type should be in uppercase.

The enum increase the level of abstraction, example is as follow,

```
enum TrafficLightColor {RED, YELLOW, GREEN};

. . .

int y;

TrafficLightColor x;

. . .

y = 1;

x = YELLOW;
```

The list of values follows, where the first name is assigned zero, the second 1, etc.

Provide the Description of EDIT Control given below

Answer:-

EM_CANUNDO
EM_GETTEXTLIMIT
EM_GETHANDLE

EM_CANUNDO

Returns TRUE if the edit control operation can be undone.

EM_GETTEXTLIMIT

The size can be up to a predefined limit of approximately 32 kilobyte (KB) for single-line edit controls. Because this limit can change, it is called a soft limit

EM_GETHANDLE

Returns a handle identifying the buffer containing the multiline edit control's text. It is not processed by single-line edit controls.

What is mutex object?

Answer:-

A mutex *object* is a synchronization object whose state is set to signaled when it is not owned by any thread, and nonsignaled when it is owned. Only one thread at a time can own a mutex object, whose name comes from the fact that it is useful in coordinating mutually exclusive access to a shared resource. The CreateMutex function creates or opens a named or unnamed mutex object.

how variables can share their resources across multiple process?

Answer:-Variables can be shared across multiple processes by making the separate data section as following.

#pragma data_seg([[{ push | pop },] [identifier,]] ["segment-name" [, "segment-class"])

Specifies the data segment where initialized variables are stored in the .obj file. OBJ files can be viewed with the dumpbin application. The default segment in the .obj file for initialized variables is .data. Variables initialized to zero are considered uninitialized and are stored in .bss.

About keyboard accelerator (5)

Answer:-

A keyboard accelerator, also known as a shortcut key, is a keystroke or combination of keystrokes that generates a WM_COMMAND message. Keyboard accelerators are often used as shortcuts for commonly used menu commands, but you can also use them to generate commands that have no equivalent menu items. Include keyboard accelerators for any common or frequent actions, and provide support for the common shortcut keys where they apply.

Can macro takes two arguments. Explain it with example (5)

Answer:-

1. Function-like macros can take *arguments*, just like true functions. To define a macro that uses arguments.
2. you insert *parameters* between the pair of parentheses in the macro definition that make the macro function-like. The parameters must be valid C identifiers, separated by commas and optionally whitespace.

Explain CGI

Answer:-

CGI is Common Gateway Interface. Win32 executable execute by the server.

1. All browser request data is available at stdin e.g read using scanf() etc. and
2. all output sent to stdout e.g output using printf etc. is sent to the browser instead of the server screen.

purpose of using of REbar control

Answer:-

Rebar controls act as containers for child windows. An application assigns child windows, which are often other controls, to a rebar control band.

Two macro names that can message map functionality

1. **__FILE__**

This macro expands to the name of the current input file, in the form of a C string constant. This is the path by which the preprocessor opened the file, not the short names specified in #include or as the input file name argument.

2. **__LINE__**

This macro expands to the current input line number, in the form of a decimal integer constant. While we call it a predefined macro, it's a pretty strange macro, since its "definition" changes with each new line of source code.

Difference between shortcut key and system menu

Answer:-

Shortcut key

1. A keyboard accelerator, also known as a shortcut key

2. Include keyboard accelerators for any common or frequent actions, and provide support for the common shortcut keys where they apply.

System menu

1. The GetSystemMenu function allows the application to access the window menu (also known as the system menu
2. Menu items on the window menu send WM_SYSCOMMAND messages

difference between send message () and post message ()

Answer:-

send message ()	post message ()
• SendMessage control is not returned to the calling application until the window that the message was sent to has completed processing the sent message, • calls the window procedure for the specified window and does not return until the window procedure has processed the message. • SendMessage is a synchronous function.	• PostMessage control is returned to the calling application immediately, regardless of weather or not the sent message has been processes. • Sends a message in the message queue associated with the thread and returns without waiting for the thread to process that messaage. • PostMessage is a Asynchronous function

Two disadvantages of thread

Answer:-

1. Threads major disadvantage is that they make the system slow because thread uses the time sharing concept that is another name multitasking.
2. A multitasking operating system divides the available processor time among the processes or threads that need it.

Define pager and list-view

Answer:-

Pager:-

A pager control is a window container that is used with a window that does not have enough display area to show all of its content.

List-view

A list-view control is a window that displays a collection of items. The control provides several ways to arrange and display the items.

what is the purpose of Bind Function?

Answer:- The bind function associates a local address with a socket. The bind function is used on an unconnected socket before subsequent calls to connect or listen functions. It is used to bind to either connection-oriented (stream) or connectionless (datagram) sockets. When a socket is created with a call to the socket function, it exists in a namespace (address family), but it has no name assigned to it. Use the bind function to establish the local association of the socket by assigning a local name to an unnamed socket.

what is the purpose of List View Control?

Answer:-

1. List View is another useful control in windows systems.
2. List view control list the items in its window. These items can be selected and clicked on each click list box send notification message to its parent window.
3. List View control makes data binding easier than previous controls. It has included styling with CSS, flexible pagination, and sorting, inserting, deleting, and updating features.

what is a custom resource?

Answer:-

Resource is binary data that you can add to the executable file of a Windows-based application. A resource can be either standard or defined. An application- defined resource, also called a custom resource, contains any data required by a specific application.

Differentiate between Simple Windows Programs & Dynamic Link Library programs?

Answer:-

When multiple instances of the same Windows-based application are loaded, each

instance is run in its own protected virtual address space. However, their instance handles

(hInstance) typically have the same value. This value represents the base address of the

application in its virtual address space. If each instance can be loaded into its default base

address, it can map to and share the same physical pages with the other instances, using

copy-on-write protection. The system allows these instances to share the same physical pages until one of them modifies a page. If for some reason one of these instances cannot be loaded in the desired base address, it receives its own physical pages.

DLLs are created with a default base address. Every process that uses a DLL will try to load the DLL within its own address space at the default virtual address for the DLL. If multiple applications can load a DLL at its default virtual address, they can share the same physical pages for the DLL. If for some reason a process cannot load the DLL at the default address, it loads the DLL elsewhere. Copy-on-write protection forces some of the DLL's pages to be copied into different physical pages for this process, because the fixups for jump instructions are written within the DLL's pages, and they will be different for this process. If the code section contains many references to the data section, this can cause the entire code section to be copied to new physical pages.

what are the three conditions of sending WM_Paint Message?

Answer:-

Windows sends a WM_PAINT message for repainting a window. The message is sent when the UpdateWindow or RedrawWindow function is called, or by the DispatchMessage function when the application obtains a WM_PAINT message by using the GetMessage or PeekMessage function. Conditions in which WM_PAINT message sent are

1. When a dialog box is maximized
2. A drop-down menu disappears
3. A tool tip is displayed and then it hides

Write down any three parameter of send function?

1. The flags parameter can be used to influence the behavior of the function beyond the options specified for the associated socket.
2. Calling send with a zero len parameter is permissible and will be treated by implementations as successful
3. addr: Optional pointer to a buffer that receives the address of the connecting entity, as known to the communications layer.

briefly explain Checkbox?

Check Boxes

A check box consists of a square box and application-defined text (label), an icon, or a bitmap, that indicates a choice the user can make by selecting the button. Applications typically display check boxes in a group box to permit the user to choose from a set of related, but independent options. For example, an application might present a group of check boxes from which the user can select error conditions that produce warning beeps. A check box can be one of four styles: standard, automatic, three-state, and automatic three-state, as defined by the constants BS_CHECKBOX, BS_AUTOCHECKBOX, BS_3STATE, and BS_AUTO3STATE, respectively. Each style can assume two check states: checked (a check mark inside the box) or cleared (no check mark). In addition, a three-state check box can assume an indeterminate state (a grayed box inside the check box). Repeatedly clicking a standard or automatic check box toggles it from checked to cleared and back again. Repeatedly clicking a three-state check box toggles it from checked to cleared to indeterminate and back again.   When the user clicks a check box (of any style), the check box receives the keyboard focus. The system sends the check box's parent window a WM_COMMAND message containing the BN_CLICKED notification code. The parent window doesn't acknowledge this message if it comes from an automatic check box or automatic three-

state check box, because the system automatically sets the check state for those styles. But the parent window must acknowledge the message if it comes from a check box or three-state check box because the parent window is responsible for setting the check state for those styles. Regardless of the check box style, the system automatically repaints the check box once its state is changed.

Write down the basic socket operation.

Answer:-

The following are the basic operations performed by both server and client systems.

1. Create an unbound socket

2. Binding Server

3. Connecting Client

4. Listen

5. Accept

6. Send

7. Receive

What is mean by process 2marks

Answer:-

When you tell your computer to run a program, a new process is created which runs the code in that program. A process is an instance of a program .

MIME meant?

Answer:-

MIME stands for Multi-purpose Internet Mail Extensions.

It contains encoding features, added to enable transfer of binary data, e.g. images

(GIF, JPEG etc.) via mail. Using MIME encoding HTTP can now transfer complex binary data, e.g. images and video.

MIME define "Resource Only DLLs?

Answer:-

Resource Only DLL contains only resource of different language and local types. Resource only DLLs do not contain Entry Point or any DllMain Function.Use of resource-only DLL is for internationalization.

How can I return multiple values from a function?

Illustrate the concept using C++ code … marks)

you can only return 1 variable using "return". There is a way to do what you want though. basically you pass the address of the "two" and "five" variables.
Example:
int n, two, five;
fcnName(n, &two, &five) //no need to return anything
{
//here will be your function code
}

If you include CS-DBLCLKS in your window call style, the windows procedure receives which message for double click. (Specify exact sequence)

Answer:-

CS_DBLCLKS class style: Your application must set this style when registering the window class.

A double-click message is always the third message in a four-message series.

The first two messages are the button-down and button-up messages generated by the first click.

The second click generates the double-click message followed by another button-up message.

For example, double-clicking the left mouse button generates the following message sequence:

How do I restrict my window so it can't be resized larger or smaller than a certain size?

Answer:-

A window can have zero width or height. If an application sets a window's width and height to zero, the system sets the size to the default minimum window size. An application can size a window so that it is extremely large; however, it should not size a window so that it is larger than the screen. Before setting a window's size, the application should check the width and height of the screen by using GetSystemMetrics with the SM_CXSCREEN and SM_CYSCREEN flags.

Write following statement in words

   Const char *ptr=buff

Ans: it represents variable pointer to constant data.

What is the equivalence in pointers and arrays in C?

An array name is actually a pointer to the first element of the array. it is possible to assign an array to a pointer. For example,

the following is legal.

int b[100]; // b is an array of 100 ints.

We can use the ``array subscripting'' notation [i] on pointers, too. If we write

ip[3]

it is just as if we had written

```
*(ip + 3)
```

Use of Translate message and Dispatch message. (5 marks)

TranslateMessage, translates the virtual-key message into a character message (WM_CHAR) and places it back into the application message queue. The character message can then be removed upon a subsequent iteration of the message loop and dispatched to a window procedure.

The DispatchMessage function sends a message to the window procedure associated with the window handle specified in the MSG structure. If the window handle is HWND_TOPMOST, DispatchMessage sends the message to the window procedures of all top-level windows in the system. If the window handle is NULL, DispatchMessage does nothing with the message.

What is handle to menu? (2 marks)

HANDLE to a menu specifies a child-window identifier depending on the window style. For an overlapped or pop-up window, hMenu identifies the menu to be used with the window; it can be NULL if the class menu is to be used. For a child window, hMenu specifies the child-window identifier, an integer value used by a dialog box control to notify its parent about events. The application determines the child-window identifier; it must be unique for all child windows with the same parent window.

Which function is used to create window class? (2 marks)

CreateWindow or CreateWindowEx function.

Thread Synchronization?

Using threads we can use lot of shared variables. These shared variables maybe used by a single thread furthermore these variables may also be used and changed by several parralle threads. If there are several threads operating at the same time then a particular DC handle can be used in one of the threads only. If we want to use a single DC handle in more than one thread, we use synchronization objects. Synchronization objects prevent other threads to use the shared data at the same.

To synchronize access to a resource, use one of the synchronization objects in one of the

wait functions. The state of a synchronization object is either

1. signaled or
2. nonsignaled.

The wait functions allow a thread to block its own execution until a specified nonsignaled object is set to the signaled state.

What is HTTP?

HTTP is a Stateless protocol. No information or "state" is maintained about previous HTTP requests. Easier to implement than state-aware protocols .

Any two advantages of threads?

1. Threads can be used to start another activity parallel. E.g. saving file on disk, automatically while you are typing.

Perform different calculations parallel.

Scope of variables in DLL file if variables declared as export

Answer:-

Variables defined in DLL have scope in memory until the DLL is loaded. After unloading, the variable scope is vanished. Locally defined variables are accessed within the DLL only. The variables that are set to export variables can be accessed outside the DLL if the DLL is statically linked.

Variables can be shared across multiple processes by making the separate data section as following.

#pragma data_seg([[{ push | pop },] [identifier,]]

["segment-name" [, "segment-class"])

Q#3) The column was given about Status code of HTTP, Bad request, Request not found etc we have to match the column according to the correct status code number.. (5)

(HTTP Status codes)

404 Not Found   (Requested document not found on this server)

200 OK   (Request succeeded, requested object later in this message)

400 Bad Request   (Request message not understood by server)

302 Object Moved   (Requested document has been moved to some other location)

CGI stands for? (1 Mark)

Control Gateway Interface

Responsibilities of Kernel. (5 marks)

Ans; Main Responsibilities of Kernel are,

1 Process Management

2 File Management

3 Memory Management (System and Virtual Memory)

In Windows Operating System Kernel is implemented in the form of Kernel32.dll file.

The Kernel is responsible for scheduling and synchronizing threads, processing,

exception and interrupts. Loading applications and managing memory. Kernel is

responsible for the system stability and efficiency.

Disadvantages of threads. (3 marks)

Threads major disadvantage is that they make the system slow because thread uses the

time sharing concept that is another name multitasking. A multitasking operating system

divides the available processor time among the processes or threads that need it. The

system is designed for preemptive multitasking; it allocates a processor time slice to each

thread it executes. The currently executing thread is suspended when its time slice elapses, allowing another thread to run.

Copy on write protection (3 Marks)

Copy-on-write protection is an optimization that allows multiple processes to map their virtual address spaces such that they share a physical page until one of the processes modifies the page.

Example, suppose two processes load pages from the same DLL into their virtual memory spaces. These virtual memory pages are mapped to the same physical memory pages for both processes. As long as neither of the processes writes to these pages, they can map to and share the same physical pages.

Write any 5 features of DOS Programming (3 Marks)

1. It "owns" the system
2. Provides direct device access
3. Non-portability across machines
4. Status polling
5. No multitasking
6. No multithreading- Single path of execution
7. DOS launches User Application; when done, control returned to DOS.

What is Virtual Directory? and explain...(5 marks);
Represents the Home Directory of a Web Server

IIS (Internet Information Server) has c:\inetpub\wwwroot\ as its default Home Directory

Here, /courses/ either corresponds to a Physical Directory c:\inetpub\wwwroot\courses
OR Virtual Directoy

In a Web Server, we may specify that /courses/ will represent some other physical directory on the Web Server like D:\MyWeb\. Then /courses/ will be a Virtual Directory.
In Windows2000 and IIS 5.0 (Internet Information Server), a folder's "Web Sharing…"
is used to create a Virtual Directory for any folder.

What is a process 2marks

A process is an executable program. A running application that consists of a private virtual address space, code, data, and other operating-system resources, such as files, pipes, and synchronization objects that are visible to the process. A process also contains one or more threads that run in the context of the process.

Briefly explain DNS?5marks

DNS is an industry-standard protocol used to locate computers on an IP-based networks.it is the locator service of choice in MS Windows, is an industry-standard protocol. IP networks such as the Internet and Windows networks rely on number-based addresses to process information. Users however, are better at remembering letter-based addresses, so it is necessary to translate user-friendly names http://www.vu.edu.pk into addresses that the network can recognize (203.215.177.33).

DNS is the primary locator service for Active Directory, and therefore, DNS can be considered a base service for both Windows 2000 and Active Directory. Windows 2000 provides functions that enable application programmers to use DNS functions such as programmatically making DNS queries, comparing records, and looking up names.

State three differences between a Window Procedure and a Dialog Procedure?

The Dialog Procedure function is an application-defined callback function used with the CreateDialog and DialogBox families of functions.

1   It processes messages sent to a modal or modeless dialog box.
2   The DLGPROC type defines a pointer to this callback function.
3   DialogProc is a placeholder for the application-defined function name.

The window procedure processes messages for all windows of that class and therefore, controls their behavior and appearance.

1   Every class needs a window-procedure address to define the entry point of the window procedure used to process all messages for windows in the class.
2   The system passes messages to the procedure when it requires the window to carry out tasks, such as painting its client area or responding to input from the user.
3   A process assigns a window procedure to a class by copying its address to the lpfnWndProc member of the WNDCLASSEX structure.

Write any six types of windows resources. …3mrks

Following are the Windows Resources, used in windows.

1. Accelerator

2. String Table
3. Icon
4. Bitmap
5. Dialog
6. Menu
7. Cursor
8. Version

How a web browser fetches a page. Write step by step procedure to the page in the link below. (http://www.vu.edu.pk/courses/win32.html).. …3mrks

1. http://www.vu.edu.pk/courses/win32.html
2. Hostname/DNS lookup for www.vu.edu.pk to get IP address
3. HTTP protocol uses port 80.
4. Connect to port 80 of the IP address discovered above!
5. Request the server for /courses/win32.html

What is meant by "Static web contents" ? 2
Server blindly dumps HTML files to the clients. That is 'static content'. Static web content is published to regular files on your server and handled using the simplest methods available to the web server.

When "getMessage()" retrieves a "WM_QUIT" message, what it will return and what will be the effect on WinMain() function. …5mrks

The GetMessage function retrieves a message from the calling thread's message queue

and also removes the message from the queue. And then this function dispatches incoming sent messages until a posted message is available for retrieval.

If the function retrieves the WM_QUIT message, the return value is zero. An application can end its own loop by using the PostQuitMessage function, typically in response to the WM_DESTROY message in the window procedure of the application's main window.

What is meant by dialog unit? 2

DLU is a unit of horizontal or vertical distance within a dialog box.

1. A horizontal DLU is the average width of the current dialog box font divided by 4.
2. A vertical DLU is the average height of the current dialog-box font divided by 8.

Which function is not used to handle a caret?

Dos and windows?

MS DOS (Disk Operating System) is a command line user interface.

1. DOS "owns" the system
2. Provides direct device access
3. Non-portability across machines
4. Status polling
5. No multitasking
6. No multithreading- Single path of execution
7. DOS launches User Application; when done, control returned to DOS

MS Windows provide a graphical operating environment for PC users.

1. Resource sharing
2. Device independent programming
3. Message driven operating system
4. GDI (Graphics Device interface)
5. Multitasking
6. Multithreading

Types of Brush

There are two types of brushes:

1. logical and
2. physical

A logical brush is one that you define in code as the ideal combination of colors and/or pattern that an application should use to paint shapes.

A physical brush is one that a device driver creates, which is based on your logical-brush definition.

Define the purpose of connect function with syntax. What does it return?

Connect:

The connect function establishes a connection to a specified socket.

Syntax for Connect():

```
int connect(

  SOCKET s,

  const struct sockaddr* name,

  int namelen

);
```

Explanations:

s: Descriptor identifying an unconnected socket.

 name: Name of the socket in the sockaddr structure to which the connection should be established.

namelen: Length of name, in bytes

Return Values: If no error occurs, connect returns zero. Otherwise, it returns SOCKET_ERROR, and a specific error code can be retrieved by calling WSAGetLastError.

On a blocking socket, the return value indicates success or failure of the connection attempt.

With a nonblocking socket, the connection attempt cannot be completed immediately. In this case, connect will return SOCKET_ERROR, and WSAGetLastError will return WSAEWOULDBLOCK.

What is semaphore object and what is does? 5

A semaphore object is a synchronization object that maintains a count between zero and a specified maximum value. The count is decremented each time a thread completes a wait for the semaphore object and incremented each time a thread releases the semaphore. When the count reaches zero, no more threads can successfully wait for the semaphore object state to become signaled. The state of a semaphore is set to signaled when its count is greater than zero, and nonsignaled when its count is zero.

The semaphore object is useful in controlling a shared resource that can support a limited number of users. It acts as a gate that limits the number of threads sharing the resource to a specified maximum number. For example, an application might place a limit on the

number of windows that it creates. It uses a semaphore with a maximum count equal to the window limit, decrementing the count whenever a window is created and incrementing it whenever a window is closed.

Define Dynamic Link Libraries in detail? Also explain its relation with memory management?

DLLs are created with a default base address. Every process that uses a DLL will try to load the DLL within its own address space at the default virtual address for the DLL. If multiple applications can load a DLL at its default virtual address, they can share the same physical pages for the DLL. If for some reason a process cannot load the DLL at the default address, it loads the DLL elsewhere. Copy-on-write protection forces some of the DLL's pages to be copied into different physical pages for this process, because the fixups for jump instructions are written within the DLL's pages, and they will be different for this process. If the code section contains many references to the data section, this can cause the entire code section to be copied to new physical pages.

what is model and modeless dialog? 3

A modal dialog box should be a pop-up window having a window menu, a title bar, and a thick border; that is, the dialog box template should specify the

1. WS_POPUP,
2. WS_SYSMENU,
3. WS_CAPTION, and
4. DS_MODALFRAME styles.

An application must not create a modal dialog box having the WS_CHILD style. A modal dialog box with this style disables itself, preventing any subsequent input from reaching the application.

A modeless dialog box should be a pop-up window having a window menu, a title bar, and a thin border; that is, the dialog box template should specify

1. WS_POPUP,

2. WS_CAPTION,
3. WS_BORDER, and
4. WS_SYSMENU styles.

The system does not automatically display the dialog box unless the template specifies the WS_VISIBLE style. An application creates a modeless dialog box by using the CreateDialog or CreateDialogIndirect function.

what is spread sheet?

A spreadsheet is a grid that organizes data into columns and rows. Spreadsheets make it easy to display information, and people can insert formulas to work. Spreadsheet applications use pens to designate trends in graphs and to outline bar graphs and pie charts.

what is function of hot key?

A hot key is a key combination that generates a WM_HOTKEY message, a message the system places at the top of a thread's message queue, bypassing any existing messages in the queue. Applications use hot keys to obtain high-priority keyboard input from the user.

For example, by defining a hot key consisting of the CTRL+C key combination, an application can allow the user to cancel a lengthy operation.

what is property sheet?

A property sheet is a window that allows the user to view and edit the properties of an item.

deleteObject(hBrush) what will it do?

After drawing, brush must be deleted. And this function (deleteObject(hBrush)) will delete that brush.

What are the System and non system keystrokes?

1. System keystrokes produce system keystroke messages, WM_SYSKEYDOWN and WM_SYSKEYUP.
2. Nonsystem keystrokes produce nonsystem keystroke messages, WM_KEYDOWN and WM_KEYUP.

5 Marks

what happen if stack overflow message appear,which part will to deal to it? 5 Marks

The program will either halt, crash or will continue to show same result again n again.The common cause for a stack overflow is a bad recursive call. Typically this is caused when your recursive functions doesn't have the correct termination condition, so it ends up calling itself for ever. It can be fixed by transforming the recursion into a loop and storing the function arguments in a stack.

why do we use # define directives?

#define directive defines an identifier, actually

1. a macro name, and
2. a string the macro substitution

which will be substituted for the identifier each time the identifier is encountered in the source file. Once a macro name has been defined, it may be used as part of the definition of

other macro names. If the string is longer than one line, it may be continued by placing a backslash on the end of the first line. By convention, C programmers use uppercase for defined identifiers.
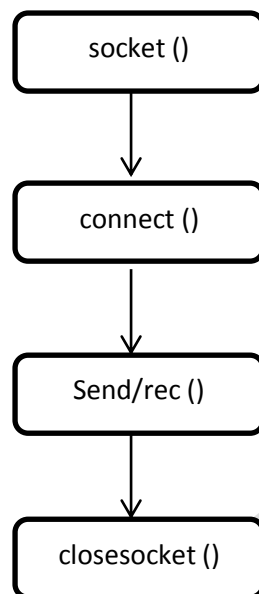
What is list box (2 marks)

It creates a list box control. List box items can be represented by text strings, bitmaps, or both. If the list box is not large enough to display all the list box items at once, the list box provides a scroll bar. The user scrolls through the list box items, and applies or removes selection status as necessary. Selection style of a list box item or its visual appearance can be changed in Operating system metrics. When the user selects or deselects an item, the system sends a notification message to the parent window of the list box.
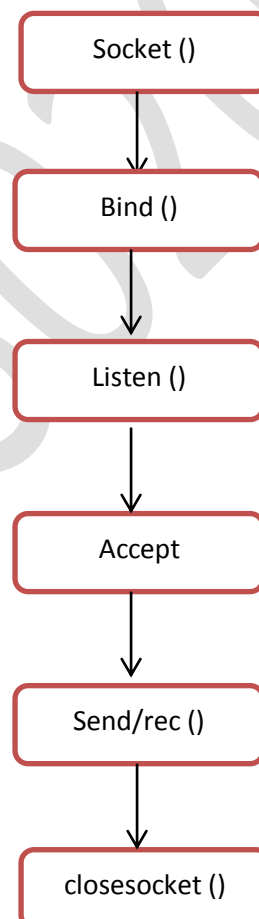
message loop key up event?

A thread's message loop must include TranslateMessage if the thread is to receive

character input from the keyboard. The system generates virtual-key messages

(WM_KEYDOWN and WM_KEYUP) each time the user presses a key. A virtual-key

message contains a virtual-key code that identifies which key was pressed, but not its

character value.

Show the flow of server and client socket calls using block diagram?

```
socket ()
   |
   v
connect ()
   |
   v
Send/rec ()
   |
   v
closesocket ()
```

```
Socket ()
   |
   v
Bind ()
   |
   v
Listen ()
   |
   v
Accept
   |
   v
Send/rec ()
   |
   v
closesocket ()
```

Why web servers are required to send MIME type in case of an HTTP reply? Mks 3

HTTP is a Text Transport Protocol , Transferring binary data over HTTP needs Data Encoding and Decoding because binary characters are not permitted Similarly some characters are not permitted in a URL, MIME contains encoding features, added to enable transfer of binary data, e.g. images (GIF, JPEG etc.) via mail. Using MIME encoding HTTP can now transfer complex binary data, e.g. images and video.

What is meant by web browser? Explain its working. 3

How windows socket function works? (3 Marks)

Windows Sockets (Winsock) enables programmers to create advanced Internet,

intranet, and other network-capable applications to transmit application data across

the wire, independent of the network protocol being used. With Winsock,

programmers are provided access to advanced MS Windows networking

capabilities such as multicast and Quality of Service (QOS). Winsock follows the Windows Open System Architecture (WOSA) model, it defines a standard service provider interface (SPI) between the application programming interface (API), with its exported functions and the protocol stacks.

sendmessage and post message syntex

syntax Example for SendMessage ()

SendMessage(hWndPopup, WM_DRAW_FIGURE,   RECTANGLE, 0);

break;

syntax of "choose Color" 2.M need to chk again..

ChooseColor(&chooseclr);

typedef struct {

DWORD   lStructSize;

```
HWND        hwndOwner;

HWND        hInstance;

COLORREF    rgbResult;

COLORREF  * lpCustColors;

DWORD       Flags; CC_RGBINIT | CC_FULLOPEN | CC_ANYCOLOR

LPARAM      lCustData;

LPCCHOOKPROC lpfnHook;

LPCTSTR     lpTemplateName;

} CHOOSECOLOR, *LPCHOOSECOLOR;
```

Message loop ?

A simple message loop consists of one function call to each of these three functions:

1. GetMessage,
2. TranslateMessage, and
3. DispatchMessage.

GetMessage returns -1 -- thus the need for the special testing.

The GetMessage function retrieves a message from the queue and copies it to a structure

of type MSG. It returns a nonzero value, unless it encounters the WM_QUIT message,

in which case it returns FALSE and ends the loop.

TranslateMessage : A thread's message loop must include TranslateMessage if the thread is to receive character input from the keyboard. The system generates virtual-key messages

(WM_KEYDOWN and WM_KEYUP) each time the user presses a key. A virtual-key

message contains a virtual-key code that identifies which key was pressed, but not its

character value. To retrieve this value, the message loop must contain TranslateMessage, which translates the virtual-key message into a character message.

The DispatchMessage function sends a message to the window procedure associated with the window handle specified in the MSG structure. If the window handle is HWND_TOPMOST, DispatchMessage sends the message to the window procedures of all top-level windows in the system. If the window handle is NULL, DispatchMessage does nothing with the message.

an application can set up for itself any logical coodinates system, using API. write down any two.(3)

An application can set up for itself any logical coordinate system, using

1. SetMapMode,
2. SetWindowExt,
3. SetWindowOrg,
4. SetViewportExt, and
5. SetViewportOrg.