



The Accredited Symbian Developer Primer

Example Questions



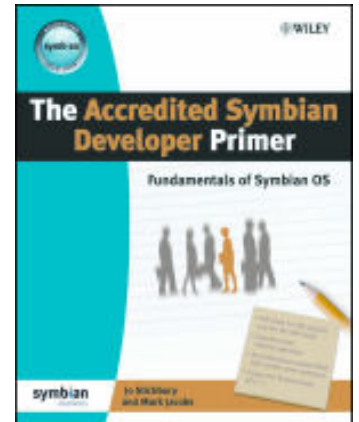
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The Accredited Symbian Developer Primer

The Fundamentals of Symbian OS

This book explains the fundamental concepts of C++ for Symbian OS. It is targeted at readers who wish to hone their understanding of Symbian OS v9 software development, and it will prepare them to become Accredited Symbian Developers.

The Accredited Symbian Developer Primer explains the fundamental concepts of Symbian C++ development and is the official revision guide to the Accredited Symbian Developer (ASD) exam. The knowledge and skills detailed in the book will teach you how to create high quality code for Symbian C++ applications and services; and prepare you for the ASD exam.



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Instructions

The following 48 questions are examples to illustrate the type of questions presented by the ASD exam. The language, style and difficulty levels are similar to the real exam!

For each question, as many as 3 answers may be correct; that is, there may be one, two or three correct answers.

If you have questions about these questions, please contact us at the following e-mail address info@meme-education.com

I. C++ Language Fundamentals



Question 1

Which of the following statements incorrectly describe the C++ preprocessor?

- A. The preprocessor evaluates all statements that begin with a # character.
- B. The preprocessor checks all `#define` directives to ensure the correct C++ syntax.
- C. By default, the preprocessor includes a header file only once in each project.
- D. The preprocessor syntax checks C++ source code before it is compiled.
- E. The preprocessor evaluates every C++ keyword in the source code.

Easy



Question 2

Which of the following statements incorrectly describe C++ references?

- A. A reference is another name for the object to which it refers.
- B. A reference has to be initialized when it is declared.
- C. A reference can be set to refer to a different object using assignment.
- D. To access the object the reference refers to, the dereference operator (`->`) must be used.
- E. A reference remains valid, irrespective of the scope or lifetime of the object to which it refers.

Medium



Question 3

Which of the following statements regarding the declaration and definition of an object in a working C++ program are correct?

- A. An object can be declared only once.
- B. An object can be declared multiple times but defined only once.
- C. If an object is declared and used, it must be defined.
- D. `TInt x = 42` is an example of an integer declaration.
- E. Declaring a variable associates an identifier with a type.

Hard

2. Classes and Objects



Question 4

Which of the following statements regarding the three types of access control in C++ are correct?

- A. Private members of a class are accessible by non-static member functions of that class.
- B. Private members of a class are not accessible by friends of that class.
- C. Protected members of a class are accessible by non-static member functions of that class.
- D. Protected members of a class are accessible by friends of that class
- E. Public members of a class are accessible by static member functions of that class without the need to create an object.

Easy



Question 5

A class has a data member of pointer type and owns the storage pointed out. Which of the following are not necessary to implement full value semantics for the class?

- A. A copy constructor
- B. A conversion operator to return the address held
- C. A destructor
- D. An assignment operator
- E. A concatenation/addition operator

Medium



Question 6

Which of the statements about the following code, which demonstrates the use of nested classes, are correct?

```
class TOuter
{
public:
    class TInner
    {
    private:
        TInt32 iInnerPrivateVal;
    };
private:
    TInt32 iOuterPrivateVal;
};
```

- A. The statement `TOuter Foo;` instantiates a `TInner` object.
- B. The statement `TOuter::TInner Bar;` does not instantiate a `TOuter` object;



- C. The size of a `TOuter` object is 8 bytes.
- D. Class `TOuter` can access `TInner::iInnerPrivateVal`.
- E. Class `TInner` cannot access `TOuter::iOuterPrivateVal`;

Hard

3. Class Design and Inheritance



Question 7

Which of the following are incorrect statements about the characteristics of an abstract C++ class?

- A. An abstract class cannot be instantiated.
- B. An abstract class cannot be a base class to any other class.
- C. All the member functions must be fully implemented.
- D. An abstract class must have at least one pure virtual function.
- E. An abstract class cannot inherit from another abstract class.

Easy



Question 8

Which of the following cannot access the private members of a base class?

- A. Member functions in the class itself
- B. Objects of a class derived class using public inheritance
- C. Functions marked as friends of the base class
- D. Functions marked as friends of the derived class
- E. Static member functions in the derived class

Medium



Question 9

A developer writes a function that returns the sum of two objects, and wishes to make it generic so it can be used for a variety of types. Which of the following statements correctly describe the benefits of writing template functions over writing overloaded functions for this purpose?

- A. Template code runs faster because the compiler generates the code.
- B. Template code is written only once.
- C. There is no danger of function redefinition errors for template code.
- D. A template function is easier to maintain, for example, if new types are added.
- E. The syntax of template functions reduces the chance of bugs in the code.

Hard

4. Symbian OS Types and Declarations



Question 10

Which of the following statements about Symbian OS C classes are correct?

- A. A C class must always have a virtual destructor
- B. When writing a C class, a developer must define public default and copy constructors
- C. A C class may not own data stored on the heap
- D. A C class must always derive from `CBase`
- E. When they are allocated on the heap, objects of a C class are zero filled on construction

Easy



Question 11

Which of the following are fundamental Symbian types?

- A. `int`
- B. `TUint8`
- C. `TFloat`
- D. `unsigned TInt`
- E. `TBool`

Medium



Question 12

Which of the following statements about Symbian OS M classes are correct?

- A. M classes must not be instantiated
- B. Multiple inheritance on Symbian OS uses M classes for dynamic binding
- C. M classes are used to define interfaces such as “observers”
- D. M classes may contain member variables as long as each variable is a pointer
- E. M class functions should only be pure virtual

Hard

5. Leaves and the Cleanup Stack



Question 13

Which of the following statements about exception handling in Symbian OS are correct?

- A. Symbian OS is a robust operating system and handles exceptions internally so that a developer does not have to do so
- B. If a leave occurs, the system reboots
- C. If a leave occurs, memory that is not “leave safe” may be leaked
- D. Leaving code is found most often in the system layers and rarely in application level code
- E. The LeaveScan tool can be used to detect functions that may leave

Easy



Question 14

In which of the following cases is it incorrect for code to leave?

- A. In a function, which also returns an error, to indicate a significant failure
- B. When heap allocation fails due to insufficient memory
- C. When a file cannot be located, to indicate that a new one must be created
- D. To detect a programming error, such as an off-by-one error, in debug builds
- E. To redirect program logic by skipping to a different point in code

Medium



Question 15

Which of the following suggestions would improve the way `TestFunctionL()` manages heap memory or highlight any memory leaks?

```
void TestFunctionL()
{
    _LIT(KHello, "Hello World");

    HBufC* helloDes = KHello().AllocL();

    LeavingFunctionL();
}
```

- A. Adding `delete helloDes` before the function returns so `helloDes` is destroyed if `LeavingFunctionL()` returns normally
- B. Adding the debug macros `__UHEAP_MARK` and `__UHEAP_MARKEND` to the start and end of the function, respectively.
- C. Pushing `helloDes` onto the cleanup stack in the first line of `TestFunctionL()`



- D. Telling any developers whose code will call `LeavingFunctionL()` to surround each call to `LeavingFunctionL()` with a `TRAP` harness
- E. Pushing `helloDes` onto the cleanup stack before calling `LeavingFunctionL()`

Hard

6. Two-Phase Construction and Object Destruction



Question 16

Which of the following statements regarding two-phased construction are incorrect?

- A. The cleanup stack cannot be used inside an object's `NewL()` function since `NewL()` is static.
- B. `NewL()` cannot call any leaving functions other than the `ConstructL()`.
- C. A C++ constructor should not perform any memory allocation.
- D. A Symbian OS C class should have a static factory function called `NewL()` or `NewLC()` which instantiates an object of that class.
- E. Any initialization that may fail should be carried out in the second-phased construction method.

Easy



Question 17

Which of the following statements incorrectly compare the two-phased construction idiom used on Symbian OS with traditional C++ object construction?

- A. Two-phased construction takes fewer processor cycles than traditional C++ object construction.
- B. Conventional C++ object construction does not have to be two-phased as it is for Symbian OS object construction, because memory allocation using `malloc` cannot fail.
- C. Conventional C++ object constructors that allocate memory can leave objects in an undefined state if the allocation fails. Two-phased construction on Symbian OS ensures that objects are cleaned up if a memory allocation fails.
- D. Garbage collection is enabled by two-phase construction but is not used by traditional C++ object construction.
- E. Two-phase construction on Symbian OS is used when instantiating an object of a C class. Construction of a T class object is comparable to traditional C++ object instantiation.

Medium



Question 18

A developer has implemented the 2-phase construction scheme below:

```
CFoo* CFoo::NewLC(TInt aBufSize, const TDesC& aFilename)
{
    CFoo* me = new CFoo;
    CleanupStack::PushL(me);
    me->ConstructL(aBufSize, aFilename);
    return (me);
}
```

```
void CFoo::ConstructL(TInt aBufSize, const TDesC& aFilename)
{
    iBuffer = HBufC8::NewL(aBufSize);

    RFs session;
    User::LeaveIfError(session.Connect());
    CleanupClosePushL(session);
    RFile file;
    User::LeaveIfError(file.Open(session, aFilename, EFileRead|
EFileShareReadersOnly));
    file.Read(iBuffer->Des());
    file.Close()
    CleanupStack::Pop(1); // destroy session
}

CFoo::CFoo() {}
```

Which of following statements about the code shown are correct?

- A. CFoo::ConstructL() handles all possible errors that may occur in memory allocation and file handling.
- B. If User::LeaveIfError(file.Open(...)) leaves, the filesystem server session will be cleaned up correctly.
- C. If the call to read from the file does not execute correctly then ConstructL() leaves.
- D. The code which implements CFoo::NewLC() handles memory allocation failures correctly.
- E. It is acceptable to declare the CFoo constructor as protected or private.

Hard

7. Descriptors



Question 19

Which of the following statements about descriptors are correct?

- A. All descriptor classes, except `RBuf`, derive from `TDesC`.
- B. The first four bytes of a descriptor store the descriptor's length and type.
- C. The descriptor classes do not use virtual functions to avoid the overhead of a virtual function pointer in every descriptor object.
- D. Modifiable descriptors use the `NULL` terminator to indicate the end of the descriptor data.
- E. All descriptors have "wide", 16-bit characters.

Easy



Question 20

Given the code below for `TestFunction()`, which of the following statements are correct?

```
void TestFunction()
{
1   _LIT(KHello, "Hello!");
2   TBufC<6> hello(KHello);
3   _LIT(KBye, "Goodbye!");
4   TBufC<8> bye(KBye);

5   TPtr foo(hello.Des());
6   TInt len = foo.Length();
7   TInt maxLen = foo.MaxLength();

8   TPtr bar(bye.Des());
9   foo.Set(bar);
10  len = foo.Length();
11  maxLen = foo.MaxLength();

12  foo.Copy(KHello);
13  len = foo.Length();
14  maxLen = foo.MaxLength();
}
```

- A. After executing line 2, a call to `hello.MaxLength()` returns 6.
- B. After executing line 6, `len = 6`; After line 7, `maxLen = 6`.
- C. After executing line 9, `hello` contains "Goodbye!".
- D. After executing line 10, `len = 8`; After line 11, `maxLen = 8`.
- E. After executing line 13, `len = 6`; After line 14, `maxLen = 6`.

Medium



Question 21

For the class below, which of the following uses of a descriptor should be reconsidered?

```
class CTestClass : public CBase
{
public:
    static CTestClass* NewL(const TFileName aFilename); // USE 1
public:
    inline const TDesC& FileName() {return (iFileName);}; // USE 2
    void SendDataL(const TBufC<20>& aData); // USE 3
    void ReceiveDataL(TDes& aData); // USE 4
private:
    // Construction code omitted for clarity
private:
    TFileName iFileName; // USE 5
};
```

- A. USE 1
- B. USE 2
- C. USE 3
- D. USE 4
- E. USE 5

Hard

8. Dynamic Arrays



Question 22

Which of the following statements correctly describe the 'granularity' of Symbian OS dynamic arrays?

- A. Granularity represents the current number of elements in the array.
- B. Granularity represents the maximum size of the array.
- C. Granularity represents the amount by which the capacity of the array increases during a reallocation.
- D. Granularity represents the maximum number of elements the array can hold without reallocation when the array is first created.
- E. Granularity applies to arrays contained in either flat or segmented memory buffers.

Easy



Question 23

Which of the following statements about Symbian OS dynamic arrays are incorrect?

- A. When searching for an element in the array the search is always started at the low index and the search will always return with the first matching element.
- B. Symbian OS dynamic arrays must always be constructed on the heap.
- C. The maximum size of an element stored in `RArray` is bounded to an upper limit of 640 bytes.
- D. Only flat and not pointer type dynamic arrays can be sorted.
- E. Only the `CArrayX` classes can be used in user-side code. `RArray` and `RPointerArray` are intended for kernel-side arrays only.

Medium



Question 24

Which of the following are valid reasons for using one of the `CArrayX` classes rather than `RArray` or `RPointerArray`?

- A. When using the `CArrayX` classes, two assertion checks occur for every array access. As a result, `CArrayX` element access is less error-prone.
- B. To access an element of `RArray` requires a `TPtr8` to be constructed around it. This makes access slower than for `CArrayX` arrays.
- C. Unlike `CArrayX` flat arrays, `RArray` stores objects in the array as word (4 byte) aligned quantities and it is possible to get an unhandled exception on hardware that enforces strict alignment.
- D. Some `CArrayX` classes provide support for segmented memory storage.
- E. The size of elements in `RArray` is limited to a maximum of 640 bytes. This is not the case for elements of the `CArrayX` array classes.

9. Active Objects



Question 25

Which of the following statements about active objects are incorrect?

- A. `SetActive()` should be called on an active object after making a request to an asynchronous service provider.
- B. An active object class should implement `RunL()` and `DoCancel()` methods.
- C. The active object framework allows an active object to have multiple outstanding asynchronous requests.
- D. An active object should always derive from `CActive`.
- E. The active object should implement `RunError()` if a leave can occur in the `RunL()` function.

Easy



Question 26

Which of the following statements regarding an active object used for a long-running background task are correct?

- A. It should have a high priority to ensure that it gets a chance to run to completion.
- B. It should maintain an internal state machine to track the different stages of the task.
- C. It should split the long-running task into small processing "slices", with each execution of `RunL()` performing one such slice only.
- D. It should contain no accesses to data that would cause problems if the `RunL()` was pre-empted.
- E. It should use a timer to generate events that invoke `RunL()`.

Medium



Question 27

The active scheduler causes a "stray signal" panic (E32USER-CBASE 46) when the scheduler receives a request completion and cannot find an active object associated with it. Which of the following errors in the implementation of an active object class could cause this problem?

- A. Not calling `SetActive()` after submitting a request to an asynchronous service provider.
- B. Not checking whether there is an outstanding request in the implementation of `DoCancel()`.
- C. Forgetting to add an active object to the active scheduler.
- D. Implementing `RunL()` so that it performs a lot of time-consuming processing before returning.
- E. Setting `iStatus` to `KRequestPending` before submitting it in a request to an asynchronous service provider.

Hard

10. System Structure



Question 28

Which of the following statements correctly describe Symbian OS?

- A. It is a multi-tasking operating system.
- B. It is present in mobile phones from more than one manufacturer.
- C. It is a 16-bit operating system.
- D. It uses a client-server paradigm for managing access to many system resources.
- E. It is an “open” platform because source code for the Symbian OS kernel is freely available.

Easy



Question 29

Which of the following statements about Symbian OS processes are incorrect?

- A. ROM loaded DLLs occupy a fixed address.
- B. Each process has a private address space. One user process cannot directly access memory belonging to another user process.
- C. The stack size of a process can be set in its MMP file.
- D. Each process has only one heap that is allowed to vary in size between minimum and maximum values.
- E. A process remains alive as long as the main thread in the process is running.

Medium



Question 30

For projects that do not support writable static data, which of the following statements cause an error in hardware builds?

- A. `static const TRgb KRgbWhite = TRgb(255, 255, 255);`
- B. `static const TInt KMaxNumber = 100;`
- C. `#define KRgbWhite TRgb(255, 255, 255)`
- D. `static const TPoint origin(0, 0);`
- E. `static const TPtrC KNullString = _L("");`

Hard

II. Client-Server Framework



Question 31

Which of the following statements correctly describe the client-server model in Symbian OS?

- A. A client and server always execute in separate threads.
- B. A client and server always execute in separate processes.
- C. A client initiates a server request by passing an integer to identify the request. It then sends any “payload” data separately.
- D. To return data to a client, the server writes directly into the client’s address space.
- E. At any time, there can only be one outstanding synchronous client request to a server.

Easy



Question 32

For which of the following scenarios would a developer choose to implement a client and server on Symbian OS?

- A. To provide utility code, such as a 3D graphics library.
- B. To implement a system-wide “broadcast” notification system.
- C. To manage access to a hardware resource, such as the camera.
- D. To implement a Bluetooth game where the host player runs as a server and all other players are clients.
- E. To implement a user interface application for displaying weather information.

Medium



Question 33

Which of the following statements incorrectly describes Symbian OS client-server communication?

- A. Client-side access to a server must be through `RSessionBase` or `RSubsessionBase`.
- B. Each client message is represented server-side by an object of type `RMessage2`.
- C. A client never closes its connection to server because the kernel performs regular garbage collection on inactive server connections.
- D. An active object runs server-side and handles incoming client-request events in its `RunL()` method.
- E. A client passes a pointer to a callback interface to the server on connection. When an asynchronous request is complete, the server notifies the client by making a callback.

Hard

12. File Server and Streams



Question 34

Which of the following functionality is provided by the Symbian OS file server access class `RFs`?

- A. Functions to read data from a file without opening it.
- B. Functions to generate events when the contents of a directory are modified.
- C. Functions to read DRM-encrypted data.
- D. Functions to retrieve the attributes of a file.
- E. Functions to read and write the contents of a plaintext file.

Easy



Question 35

Which of the statements about the following code are correct?

```
void WriteFileL(const TDesC& aFilename, const TDesC8& aWriteBuffer)
{
1   RFs fs;
2   User::LeaveIfError(fs.Connect());
3
4   RFile file;
5   User::LeaveIfError(file.Open(fs, aFilename, EFileWrite|
EFileShareExclusive));
6
7   User::LeaveIfError(file.Write(aWriteBuffer, aWriteBuffer.MaxLength()));
8
9   file.Close();
10  fs.Close();
}
```

- A. If a leave occurs at line 5 or line 7, the filesystem session (`fs`) will be cleaned up automatically by the system.
- B. If a leave occurs at line 5 or line 7, the file handle (`file`) will be cleaned up automatically by the system.
- C. Assuming no errors, if `aWriteBuffer` contains data, its entire contents are written to the file.
- D. Another function that writes modifiable 16-bit descriptor data to file should be provided for Unicode files.
- E. `WriteFileL()` always writes to the beginning of `aFilename`, regardless of the number of times it has previously been called for that file.

Medium



Question 36

Which of the following are incorrect reasons for preferring to use the `RFileWriteStream` and `RFileReadStream` APIs instead of `RFile` for file access on Symbian OS?

- A. Streams provide an abstraction layer over the storage media used.
- B. Streams can easily store pointers and the data to which they point.
- C. Streams automatically correct for the endianness of streamed data.
- D. Streams cache data and transfer it more efficiently to the fileserver than the `RFile` API, which transfers individual chunks of data whenever the API is called to do so.
- E. The `<<` and `>>` operators are leave safe and guaranteed to succeed. The `RFile` APIs return an error code.

Hard

13. Sockets



Question 37

Which of the following statements correctly describe Protocol Modules (PRTs) on Symbian OS?

- A. Protocol modules are loaded by the Symbian OS comms server (`EComm`) allowing it to extend its comms capability dynamically.
- B. One protocol module can contain multiple protocols.
- C. Protocol modules can only be loaded from the ROM of the device.
- D. Protocols are loaded as required when a socket using a particular protocol is first opened.
- E. Connectionless protocols are not supported by Symbian OS.

Easy



Question 38

Which of the following are correct statements about connection-oriented sockets?

- A. On Symbian OS, `RSocket::Write()` can be used on a connection-oriented socket to send data.
- B. On Symbian OS, `RSocket::Transfer()` can be used on a connection-oriented socket to send data.
- C. A connection-oriented socket gives certain guarantees because it has state, such as order of delivery, data arrival and error control.
- D. TCP is an example of a transport-layer connection-oriented protocol supported by Symbian OS.
- E. A connection-oriented socket requires the destination address each time data is sent.

Medium



Question 39

Which of the following statements incorrectly describe Symbian OS socket termination?

- A. To close a socket it is only necessary to call either `RSocket::Close()` or `RSocket::Shutdown()` but never both since this will cause a `KErrServerDied` panic.
- B. Calling `RSocket::Close()` is equivalent to calling `RSocket::Shutdown()` and synchronously waiting until all input/output has stopped.
- C. The `RSocket::Shutdown()` method has both synchronous and asynchronous overloads.
- D. It is possible to cancel `RSocket::Shutdown()` by calling `RSocket::CancelShutdown()`.
- E. If an `RSocketServ` session is closed, then all `RSocket` handles associated with that session will also be closed.

Hard

14. Tool Chain



Question 40

Which of the following are valid types that can be specified using the `TARGETTYPE` keyword in an MMP file?

- A. DLL
- B. PLUGIN
- C. BIN
- D. LIB
- E. OCX

Easy



Question 41

Which of the following statements about Symbian OS resource files are incorrect?

- A. Symbian OS resource files are most often used to specify user interface elements such as menu bars and dialog types.
- B. It is only possible for Symbian OS GUI projects to contain resource files.
- C. The use of resource files allows for multi-lingual localization without recompilation of the main application code.
- D. Symbian OS resource files are not human-readable.
- E. Resource specifications are kept separate from executable code and compiled independently using the Symbian OS resource compiler.

Medium



Question 42

Which of the following statements about the MMP file specified below are correct?

```
TARGET      ASDEExample.dll
TARGETTYPE  DLL
UID         0x1000008d    0x10005268

SOURCEPATH  ..\src
SOURCE      ASDEExample.cpp

USERINCLUDE ..\inc
SYSTEMINCLUDE \epoc32\include
LIBRARY      euser.lib efsrv.lib
EPOCALLOWDLLDATA
```

- A. The DLL links to two Symbian OS libraries, the E32 user library and the F32 filesystem.
- B. `ASDEExample.dll` is a polymorphic interface DLL.



- C. When `ASDExample.dll` is built for the Symbian OS v9.1 platform, it will be assigned no capabilities.
- D. UID2 for `ASDExample.dll` is defined as `0x10005268`.
- E. When `ASDExample.dll` is built for the Symbian OS v9.1 platform, it may contain writable static data

Hard

15. Platform Security



Question 43

Which of the following statements about Symbian OS capabilities are incorrect?

- A. The capabilities of executable code are specified using the `CAPABILITY` keyword in the MMP file.
- B. The following specification in an MMP file grants privilege to access the user's files stored anywhere on the phone or removable media:

```
CAPABILITY ReadUserData
```

- C. The following specification in an MMP file allows the code to power down the phone:

```
CAPABILITY PowerMgmt
```

- D. The capabilities of an application can be boosted by calling `User::SetCapability()`.
- E. The following statement in an MMP file will grant the binary `SwEvent` capability in emulator and hardware builds:
`PlatSecDisabledCaps SwEvent`

Easy



Question 44

Which of the following statements about data-caging on Symbian OS are correct?

- A. Executable code can be installed into and executed from any subdirectory of `\system`
- B. The `\resource` directory can be used to store writable configuration files.
- C. A DLL with a Secure Identifier of `0x20005268` owns a private data-caged directory called `\private\20005268`.
- D. A private data-caged directory can only be accessed by the owning process and other processes with `AllFiles` capability
- E. Symbian OS provides a special directory on removable media which is used to detect whether executable code, installed to the card, has been tampered with.

Medium



Question 45

Which of the following statements about the groups of Symbian OS capabilities are incorrect?

- A. User capabilities are those capabilities which the user may grant at installation time, if a SIS file is not itself already signed for those capabilities.
- B. The user can decide whether to install code that reveals their location.
- C. The user can decide whether to install code that accesses and modifies the system settings of their phone.



- D. Installable software that needs system capabilities must be certified by a trusted body, such as a test house operating on behalf of Symbian Signed, before it can be installed and tested by the developer.
- E. Installable software that only needs user capabilities (or no capabilities at all) does not need to be certified by a trusted body such as Symbian Signed before it can be installed and tested.

16. Compatibility



Question 46

Which of the following changes applied to a new release of a DLL will cause a binary compatibility break?

- A. Re-ordering the public class member data
- B. Changing a parameter from `non-const` to `const`
- C. Changing the order of functions specified in the DEF file
- D. Adding an exported function to the end of the DEF file
- E. Removing an exported function from the class

Easy



Question 47

Which of the following are correct statements with regards to compatibility on Symbian OS?

- A. If two versions of a library are binary compatible they can be interchanged without recompiling applications which link to them.
- B. If a change is source compatible it will always be binary compatible.
- C. Changing the behavior of a function without changing its prototype doesn't cause a compatibility break.
- D. Removing an exported function from a DLL causes a break in binary compatibility.
- E. Removing public data from a class causes a break in binary compatibility.

Medium



Question 48

Which of the following will prevent a class from being derived or instantiated, except by members (or friends) of the class.

- A. A protected constructor.
- B. A non-static `NewL()` method.
- C. No constructors at all.
- D. A private constructor.
- E. An inline constructor.

Hard

Exam Worksheet

You may find it useful to print out this blank worksheet to record your answers as you go through the 48 ASD example questions.



Question 1

A B C D E

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Question 2

A B C D E

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Question 3

A B C D E

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Question 4

A B C D E

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Question 5

A B C D E

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Question 6

A B C D E

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Question 7

A B C D E

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Question 8

A B C D E

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Question 9

A B C D E

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Question 10

A B C D E

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Question 11

A B C D E

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Question 12

A B C D E

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Question 13

A B C D E

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Question 14

A B C D E

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Question 15

A B C D E

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Question 16

A B C D E

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Question 17

A B C D E

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Question 18

A B C D E

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Question 19

A B C D E

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Question 20

A B C D E

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Question 21

A B C D E

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Question 22

A B C D E

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Question 23

A B C D E

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Question 24

A B C D E

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Question 25

A B C D E

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Question 26

A B C D E

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Question 27

A B C D E

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Question 28

A B C D E

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Question 29

A B C D E

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Question 30

A B C D E

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Question 31

A B C D E

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Question 32

A B C D E

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Question 33

A B C D E

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Question 34

A B C D E

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Question 35

A B C D E

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Question 36

A B C D E

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Question 37

A B C D E

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Question 38

A B C D E

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Question 39

A B C D E

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Question 40

A B C D E

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Question 41

A B C D E

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Question 42

A B C D E



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 Question 43

A B C D E

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 Question 44

A B C D E

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 Question 45

A B C D E

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 Question 46

A B C D E

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 Question 47

A B C D E

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 Question 48

A B C D E

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Answers to Example Questions



Question 1

A	B	C	D	E
N	Y	Y	N	Y



Question 2

A	B	C	D	E
N	N	Y	Y	Y



Question 3

A	B	C	D	E
N	Y	Y	N	Y



Question 4

A	B	C	D	E
Y	N	Y	Y	N



Question 5

A	B	C	D	E
N	Y	N	N	Y



Question 6

A	B	C	D	E
N	Y	N	N	Y

 Question 7

A	B	C	D	E
N	Y	Y	N	Y

 Question 8

A	B	C	D	E
N	Y	N	Y	Y

 Question 9

A	B	C	D	E
N	Y	N	Y	N

 Question 10

A	B	C	D	E
Y	N	N	Y	Y

 Question 11

A	B	C	D	E
N	Y	N	N	Y

 Question 12

A	B	C	D	E
Y	Y	Y	N	N

 Question 13

A	B	C	D	E
---	---	---	---	---

N	N	Y	N	Y
---	---	---	---	---

 Question 14

A	B	C	D	E
Y	N	N	Y	Y

 Question 15

A	B	C	D	E
Y	Y	N	N	Y

 Question 16

A	B	C	D	E
Y	Y	N	N	N

 Question 17

A	B	C	D	E
Y	Y	N	Y	N

 Question 18

A	B	C	D	E
N	Y	N	N	Y

 Question 19

A	B	C	D	E
N	Y	Y	N	N

 Question 20

A	B	C	D	E
N	Y	N	Y	N

 Question 21

A	B	C	D	E
Y	N	Y	N	N

 Question 22

A	B	C	D	E
N	N	Y	Y	Y

 Question 23

A	B	C	D	E
N	Y	N	Y	Y

 Question 24

A	B	C	D	E
N	N	Y	Y	Y

 Question 25

A	B	C	D	E
Y	N	Y	N	N

 Question 26

A	B	C	D	E
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N	Y	Y	N	N
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 Question 27

A	B	C	D	E
Y	N	Y	N	N

 Question 28

A	B	C	D	E
Y	Y	N	Y	N

 Question 29

A	B	C	D	E
N	N	N	Y	N

 Question 30

A	B	C	D	E
Y	N	N	Y	Y

 Question 31

A	B	C	D	E
Y	N	N	N	Y

 Question 32

A	B	C	D	E
N	Y	Y	N	N

 Question 33

A	B	C	D	E
N	N	Y	N	Y

 Question 34

A	B	C	D	E
Y	Y	N	Y	N

 Question 35

A	B	C	D	E
N	N	Y	N	Y

 Question 36

A	B	C	D	E
N	Y	N	N	Y

 Question 37

A	B	C	D	E
N	Y	N	Y	N

 Question 38

A	B	C	D	E
Y	N	Y	Y	N

 Question 39

A	B	C	D	E
Y	N	Y	Y	N

 Question 40

A	B	C	D	E
Y	Y	N	Y	N

 Question 41

A	B	C	D	E
N	Y	N	Y	N

 Question 42

A	B	C	D	E
Y	N	Y	N	Y

 Question 43

A	B	C	D	E
N	Y	N	Y	Y

 Question 44

A	B	C	D	E
N	N	N	Y	N



 Question 45

A	B	C	D	E
N	N	Y	Y	N

 Question 46

A	B	C	D	E
Y	N	Y	N	Y

 Question 47

A	B	C	D	E
Y	N	N	Y	Y

 Question 48

A	B	C	D	E
N	N	N	Y	N