**Lesson 1: Introduction to Programming**

1. You need to gain a better understanding of the solution before writing the program. You decide to develop an algorithm that lists all necessary steps to perform an operation in the correct order. Any technique that you use should minimize complexity and ambiguity. Which of the following techniques should you use?

a) flowchart

b) decision table

c) C# program

d) A paragraph in English

2. Which of the following languages is not considered a high-level programming language?

a) C#

b) Visual Basic

c) Common Intermediate Language

d) C++

3. You are writing code for a business application by using C#. You write the following statement to declare an array:

int[] numbers = { 1, 2, 3, 4, 5 };

Now, you need to access the second item in this array (the number 2). Which of the following expression should you use?

a) numbers[0]

b) numbers[1]

c) numbers[2]

d) numbers[3]

4. You are developing a C# program. You write the following code:

int x = 10;

int y = ++x;

int z = y++;

What will be the value of the variable z after all the above statements are executed?

a) 10

b) 11

c) 12

d) 13

5. You are writing a method named PrintReport that doesn’t return a value to the calling code. Which keyword should you use in your method declaration to indicate this fact?

a) void

b) private

c) int

d) string

6. You need to provide complex multi-way branching in your C# program. You need to make sure that your code is easy to read and understand. Which of the following C# statements should you use?

a) case

b) break

c) if-else

d) switch

7. You are writing a C# program that iterates through a collection such as arrays and lists. You need to make sure that you process each item in the collection once. You also need to ensure that your code is easy to read and debug. Which of the following C# statements provide the best solution for this requirement?

a) while

b) for

c) foreach

d) do-while

8. You are developing a C# program that needs to perform 5 iterations. You write the following code:

01: int count = 0;

02: while (count <= 5)

03: {

04: Console.WriteLine("The value of count = {0}", count);

05: count++;

06: }

When you run the program, you notice that the loop does not iterate five times. What should you do to make sure that the loop is executed exactly five times?

a) Change the code in line 01 to

int count = 1;

b) Change the code in line 02 to:

while (count == 5)

c) Change the code in line 02 to

while (count >= 5)

d) Change the code in line 05 to

++count;

9. You are developing a C# program. You write the following code line:

int x = 6 + 4 \* 4 / 2 - 1;

What will be the value of the variable x after this statement is executed?

a) 19

b) 13

c) 20

d) 14

10. You are writing a C# program that needs to manipulate very large integer values that may exceed 12 digits. The values can be positive or negative. Which data type should you use to store a variable like this?

a) int

b) float

c) double

d) long

11. You have written a C# method that opens a database connection by using the SqlConnect object. The method retrieves some information from the database and then closes the connection. You need to make sure that your code fails gracefully when there is a database error. To handle this situation, you wrap the database code in a try-catch-finally block. You use two catch blocks—one to catch the exceptions of type SqlException and the second to catch the exception of type Exception. Which of the following places should be the best choice for closing the SqlConnection object?

a) Inside the try block, before the first catch block

b) Inside the catch block that catches SqlException objects

c) Inside the catch block that catches Exception objects

d) Inside the finally block

12. You are assisting your colleague in solving a compiler error that his code is throwing. Following is the problematic portion of his code:

try

{

bool success = ApplyPicardoRotation(100, 0);

// additional code lines here

}

catch(DivideByZeroException dbze)

{

//exception handling code

}

catch(NotFiniteNumberException nfne)

{

//exception handling code

}

catch(ArithmeticException ae)

{

//exception handling code

}

catch(OverflowException oe)

{

//exception handling code

}

To remove the compilation error, which of the following ways should you suggest to rearrange the code?

a) try

{

bool success = ApplyPicardoRotation(100, 0);

// additional code lines here

}

catch(DivideByZeroException dbze)

{

//exception handling code

}

catch(ArithmeticException ae)

{

//exception handling code

}

catch(OverflowException oe)

{

//exception handling code

}

b) try

{

bool success = ApplyPicardoRotation(100, 0);

// additional code lines here

}

catch(DivideByZeroException dbze)

{

//exception handling code

}

catch(Exception e)

{

//exception handling code

}

catch(OverflowException oe)

{

//exception handling code

}

c) try

{

bool success = ApplyPicardoRotation(100, 0);

// additional code lines here

}

catch(DivideByZeroException dbze)

{

//exception handling code

}

catch(NotFiniteNumberException nfne)

{

//exception handling code

}

catch(OverflowException oe)

{

//exception handling code

}

catch(ArithmeticException ae)

{

//exception handling code

}

d) try

{

bool success = ApplyPicardoRotation(100, 0);

// additional code lines here

}

catch(DivideByZeroException dbze)

{

//exception handling code

}

catch(NotFiniteNumberException nfne)

{

//exception handling code

}

catch(Exception e)

{

//exception handling code

}

catch(ArithmeticException ae)

{

//exception handling code

}

14. You are developing a C# program. You write the following code:

01: int count = 0;

02: while (count < 5)

03: {

04: if (count == 3)

05: break;

06: count++;

07: }

How many times will the control enter the while loop?

a) 5

b) 4

c) 3

d) 2

15. You are developing a C# program. You write the following code:

int i = 6;

do

{

if (i == 3)

break;

Console.WriteLine("The value of i = {0}", i);

i++;

}

while (i <= 5);

How many times will the control enter the while loop?

a) 0

b) 1

c) 2

d) 3

16. You are writing a C# program and need to select an appropriate repetition structure for your requirement. You need to make sure that the test for the termination condition is performed at the bottom of the loop rather than at the top. Which repletion structure should you use?

a) The while statement

b) The for statement

c) The foreach statement

d) The do-while statement

17. You are writing a C# program. You write the following method:

public static void TestSwitch(int op1, int op2, char opr)

{

int result;

switch (opr)

{

case '+':

result = op1 + op2;

case '-':

result = op1 - op2;

case '\*':

result = op1 \* op2;

case '/':

result = op1 / op2;

default:

Console.WriteLine("Unknown Operator");

return;

}

Console.WriteLine("Result: {0}", result);

return;

}

However, when you compile this code, you get the following error message:

*Control cannot fall through from one case label to another*

How should you modify the code to make sure that it compiles successfully?

a) After each case, add the following code line:

break;

b) After each case, add the following code line:

continue;

c) After each case, add the following code line:

goto default;

d) After each case, add the following code line:

return;

18. You are developing an algorithm for a retail Web site. You need to calculate discounts on certain items based on the quantity purchased. You develop the following decision table to calculate the discount:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Quantity < 10 | Y | N | N | N |
| Quantity < 50 | Y | Y | N | N |
| Quantity < 100 | Y | Y | Y | N |
| Discount | 5% | 10% | 15% | 20% |

If a customer buys 50 units of an item, what discount will be applicable to the purchase?

a) 5 percent

b) 10 percent

c) 15 percent

d) 20 percent

19. You are developing an algorithm before you write the C# program. You need to perform some calculations on a number. You develop the following flowchart for the calculation:

STOP

START

Output fact

n > 1?

**No**

**Yes**

fact = 1

fact = fact \* n

Input n

n = n - 1

If the input value of n is 5, what is the output value of the variable fact according to this flowchart?

a) 720

b) 120

c) 24

d) 6

20. You are writing a C# program that needs to iterate a fixed number of times. You need to make sure that your code is easy to understand and maintain even when the loop body contains complex code. Which of the following C# statements provide the best solution for this requirement?

a) while

b) for

c) foreach

d) do-while

**Lesson 2: Introduction to Object-Oriented Programming**

1. You are developing code for a method that calculates the discount for the items sold. You name the method CalculateDiscount. The method defines a variable, percentValue of the type double. You need to make sure that percentValue is accessible only within the CalculateDiscount method. What access modifier should you use when defining the percentValue variable?

a) private

b) protected

c) internal

d) public

2. You are developing code that defines an InitFields method. The method takes two parameters of data type double and does not return any value to the calling code. Which of the following code segments would you use to define the InitFields method?

a) public double InitFields(double l, double w)

{

length = l;

width = w;

return length \* width;

}

b) public void InitFields(double l, double w)

{

length = l;

width = w;

}

c) public void InitFields(double l)

{

length = l;

width = l;

return;

}

d) public double InitFields(double l, double w)

{

length = l;

width = w;

}

3. You created a class named GeoShape. You defined a method called Area in the GeoShape class. This method calculates the area of a geometric shape. You want the derived classes of GeoShape to supersede this functionality to support the area calculation of additional geometric shapes. When the method Area is invoked on a GeoShape object, the area should be calculated based on the runtime type of the GeoShape object. Which keyword should you use with the definition of the Area method in the GeoShape class?

a) abstract

b) virtual

c) new

d) overrides

4. Suppose that you defined a class Scenario that defines functionality for running customized pivot transform on large data sets. You do not want the functionality of this class to be inherited into derived classes. What keyword should you use to define the Scenario class?

a) sealed

b) abstract

c) private

d) internal

5. You need to provide printing functionality to several of your classes. Each class’s algorithm for printing will likely be different. Also, not all the classes have an “is-a” relationship with each other. How should you support this functionality?

a) Add the print functionality to a base class with the public access modifier.

b) Have all classes inherit from an abstract base class and override the base-class method to provide their own print functionality.

c) Have all the classes inherit from a base class that provides the print functionality.

d) Create a common interface that all classes implement.

6. You are writing code for a class named Book. You should be able to get a list of all books sorted by the author’s last name. You need to write code to define this behavior of a class. Which of the following class elements should you use?

a) method

b) property

c) event

d) delegate

7. Suppose that you are writing code for a class named Product. You need to make sure that the data members of the class are initialized to their correct values as soon as you create an object of the Product class. The initialization code should always be executed. What should you do?

a) Create a static method in the Product class to initialize data members.

b) Create a constructor in the Product class to initialize data members.

c) Create a static property in the Product class to initialize data members.

d) Create an event in the Product class to initialize data members.

9. You are creating a new class named Polygon. You write the following code:

class Polygon : IComparable

{

public double Length { get; set; }

public double Width { get; set; }

public double GetArea()

{

return Length \* Width;

}

public int CompareTo(object obj)

{

// to be completed

}

}

You need to complete the definition of the CompareTo method to enable comparison of the Polygon objects. Which of the following code segments should you use?

a) public int CompareTo(object obj)

{

Polygon target = (Polygon)obj;

double diff = this.GetArea() - target.GetArea();

if (diff == 0)

return 0;

else if (diff > 0)

return 1;

else return -1;

}

b) public int CompareTo(object obj)

{

Polygon target = (Polygon)obj;

double diff = this.GetArea() - target.GetArea();

if (diff == 0)

return 1;

else if (diff > 0)

return -1;

else return 0;

}

c) public int CompareTo(object obj)

{

Polygon target = (Polygon)obj;

if (this == target)

return 0;

else if (this > target)

return 1;

else return -1;

}

d) public int CompareTo(object obj)

{

Polygon target = (Polygon)obj;

if (this == target)

return 1;

else if (this > target)

return -1;

else return 0;

}

10. You are writing code for a new method named Process:

void Draw(object o)

{

}

The code receives a parameter of type object. You need to cast this object into the type Polygon. At times, the value of o that is passed to the method might not be a valid Polygon value. You need to make sure that the code does not generate any System.InvalidCastException errors while doing the conversions. Which of the following lines of code should you use inside the Draw method to accomplish this goal?

a) Polygon p = (Polygon) o;

b) Polygon p = o is Polygon;

c) Polygon p = o as Polygon;

d) Polygon p = (o != null) ? o as Polygon : (Polygon) o;

11. You are writing code to handle events in your program. You define a delegate named PolygonHandler like this:

public delegate void PolygonHandler(Polygon p);

You also create a variable of the PolygonHandler type as follows:

PolygonHandler handler;

Later in the program, you need to add a method named CalculateArea to the method invocation list of the handler variable. The signature of the CalculateArea method matches the signature of the PolygonHandler method. Any code that you write should not affect any existing event-handling code. Given this restriction, which of the following code lines should you write?

a) handler = new PolygonHandler(CalculateArea);

b) handler = CalculateArea;

c) handler += CalculateArea;

d) handler -= CalculateArea;

13. You are reviewing a C# program that contains the following class:

public class Rectangle

{

public double Length {get; set;}

public double Width { get; set; }

}

The program executes the following code as part of the Main method:

Rectangle r1, r2;

r1 = new Rectangle { Length = 10.0, Width = 20.0 };

r2 = r1;

r2.Length = 30;

Console.WriteLine(r1.Length);

What will be the output when this code is executed?

a) 10

b) 20

c) 30

d) 40

14. You are reviewing a C# program. The program contains the following class:

public struct Rectangle

{

public double Length {get; set;}

public double Width { get; set; }

}

The program executes the following code as part of the Main method:

Rectangle r1, r2;

r1 = new Rectangle { Length = 10.0, Width = 20.0 };

r2 = r1;

r2.Length = 30;

Console.WriteLine(r1.Length);

What will be the output when this code is executed?

a) 10

b) 20

c) 30

d) 40

15. You are developing a C# application. You need to decide whether to declare a class member as static. Which of the following statements is true about static members of a class?

a) You can use the this keyword reference with a static method or property.

b) Only one copy of a static field is shared by all instances of a class.

c) Static members of a class can be used only after an instance of a class is created.

d) The static keyword is used to declare members that do not belong to individual objects but to a class itself.

16. Suppose that you are a new C# developer and are reviewing object-oriented programming fundamentals. Which of the following statements is not true?

a) A class is a concrete instance of an object.

b) A class defines the template for an object.

c) A class is a definition of a new data type.

d) A constructor is used to initialize the data members of the object.

17. You are C# developer who is developing a Windows application. You develop a new class that must be accessible to all the code packaged in the same assembly. Even the classes that are in the same assembly but do not directly or indirectly inherit from this class must be able to access the code. Any code outside the assembly should not be able to access the new class. Which access modifier should you use to declare the new class?

a) public

b) protected

c) private

d) internal

18. You are C# developer who is developing a Windows application. You need to provide a common definition of a base class that can be shared by multiple derived classes. Which keyword should you use to declare the new class?

a) virtual

b) sealed

c) interface

d) abstract

19. You are C# developer who is developing a Windows application. You write the following code:

Object o;

Later in the code, you need to assign the value in the variable o to an object of Rectangle type. You expect that at runtime the value in the variable o is compatible with the Rectangle class. However, you need to make sure that no exceptions are raised when the value is assigned. Which of the following code should you use?

a) Rectangle r = (Rectangle) o;

b) Rectangle r = o;

c) Rectangle r = o as Rectangle;

d) Rectangle r = o is Rectangle;

20. You are C# developer who is developing a Windows application. You need to provide derived classes the ability to share common functionality with base classes but still define their own unique behavior. Which object-oriented programming concept should you use to accomplish this functionality?

a) encapsulation

b) abstraction

c) polymorphism

d) inheritance

**Lesson 3: Understanding General Software Development**

1. Arrange the various activities of an application lifecycle in the order in which they are likely to occur.

a) Requirements analysis, design, coding, testing, and release

b) Design, requirements analysis, coding, testing, and release

c) Release, requirements analysis, coding, testing, and design

d) Requirements analysis, design, release, coding, and testing

2. You are planning to develop a new software system for your organization. You need to review the plans, models, and architecture for how the software will be implemented. Of which of the following activities should you review the output?

a) requirements analysis

b) design

c) coding

d) testing

3. You are planning to develop a new software system for your organization. You need to review the system’s technical blueprint. Which of the following participants is responsible for providing the technical blueprint?

a) user interface designer

b) developer

c) architect

d) technical writer

4. You are planning to develop a new software system for your organization. Someone needs to be responsible for developing system manuals and help files. Which of the following participants should you identify for this task?

a) user interface designer

b) content developer

c) user interface designer

d) technical writer

5. You are planning to develop a new software system for your organization. You need to verify that the implementation of the system matches with the requirements of the system. Which of the following activities would accomplish this requirement?

a) testing

b) design

c) release

d) requirements analysis

6. You are planning to develop a new software system for your organization. You need to review the plan for packaging, deployment, delivery, and support for the software. Which of the following should you contact?

a) quality assurance manager

b) release manager

c) technical architect

d) database administrator

7. You are in the process of developing a new software application. As defects are reported, you take the necessary steps to fix them. You need to make sure that each new fix doesn’t break anything that was previously working. Which type of testing should you use?

a) integration testing

b) system testing

c) acceptance testing

d) regression testing

10. You are developing a new application that optimizes the processing of a manufacturing plant’s operations. You need to implement a data structure that works as a “buffer” for overflow capacity. When the manufacturing capacity is available, the items in the buffer need to be processed in the order in which they were added to the buffer. Which data structure should you use to implement such buffer?

a) array

b) linked list

c) stack

d) queue

11. You are developing a new application that optimizes the processing of a warehouse’s operations. When the products arrive, they are stored on warehouse racks. To minimize the time it takes to retrieve an item, the items that arrive last are the first to go out. You need to represent the items that arrive and leave the warehouse in a data structure. Which data structure should you use to represent this situation?

a) array

b) linked list

c) stack

d) queue

12. You are developing an application that uses a double dimensional array. You use the following code to declare the array:

int[,] numbers = new int[,]

{

{ 11, 7, 50, 45, 27 },

{ 18, 35, 47, 24, 12 },

{ 89, 67, 84, 34, 24 },

{ 67, 32, 79, 65, 10 }

};

Next, you refer to an array element by using the expression numbers[2, 3]. What will be the return value of this expression?

a) 47

b) 84

c) 24

d) 34

13. In your application, you are using a queue data structure to manipulate information. You need to find whether a data item exists in the queue, but you don’t want to actually process that data item yet. Which of the following queue operations will you use?

a) enqueue

b) dequeue

c) peek

d) contains

14. You are developing an application that uses the Stack data structure. You write the following code:

Stack first = new Stack();

first.Push(50);

first.Push(45);

first.Pop();

first.Push(11);

first.Pop();

first.Push(7);

What are the contents of the stack, from top to bottom, after these statements are executed?

a) 7, 11, 50

b) 7, 45

c) 7, 50

d) 7, 11, 45

15. In your application, you are using a stack data structure to manipulate information. You need to find which data item will be processed next, but you don’t want to actually process that data item yet. Which of the following queue operations will you use?

a) pop

b) push

c) peek

d) contains

17. You are studying various sorting algorithms to understand, analyze, and compare the various sorting techniques. Which of the following techniques should you utilize when using the BubbleSort algorithm?

a) comparison

b) comparison and swap

c) comparison and partition

d) partition and swap

**Lesson 4: Understanding Web Applications**

1. You are developing a Web page for a medium-sized business. You want to separate the formatting and layout of the page from its content. Which of the following technologies should you use to define the formatting and layout of the page content?

a) Cascading Style Sheets (CSS)

b) Hypertext Markup Language (HTML)

c) JavaScript

d) Hypertext Transmission Protocol (HTTP)

2. You want to display an image on your Web page. The image is stored on a separate Web server but can be accessed with a public URL. Which of the following HTML tags should you use to ensure that the image is displayed when the user navigates to your Web page?

a) <LINK>

b) <IMG>

c) <A>

d) <HTML>

3. You are developing a new Web page. You need to create hyperlinks that point to other pages on the World Wide Web. Which of the following methods should you use to create these hyperlinks on your Web page?

a) the SRC attribute of the <IMG> tag

b) the HREF attribute of the <A> tag

c) the HREF attribute of the <LINK> tag

d) the XMLNS attribute of the <HTML> tag

4. You need to perform data validation to ensure that the input fields are not empty and the user’s email address and phone numbers have been provided in the required format. You need to minimize the transmission of information across the networks. Which of the following coding approaches should you follow?

a) Use JavaScript code that executes on the Web server.

b) Use C# code that executes on the Web server.

c) Use JavaScript code that executes in the browser.

d) User C# code that executes in the browser.

5. You write large amount of JavaScript code for your Web site. You need to take advantage of caching techniques to make sure that Web pages load as quickly as possible. You also need to ensure that you can modify the JavaScript code with the least amount of effort. What should you do?

a) Write JavaScript code inside the <SCRIPT> tag. Include the <SCRIPT> within the <HEAD> tag of the HTML page.

b) Write JavaScript code inside the <SCRIPT> tag. Include the <SCRIPT> within the <BODY> tag of the HTML page.

c) Write JavaScript code in a separate file. Use the SRC attribute of the <SCRIPT> tag to link to the JavaScript file.

d) Write JavaScript code in a separate file. Use the HREF attribute of the <LINK> tag to link to the JavaScript file.

7. You are developing an ASP.NET Web page that displays status of a shipment. You need to write some code that will change the Web page’s appearance and assign values to some controls. Where should you put this code?

a) In the InitializeComponent method

b) In a method that handles the Load event

c) In a method that handles the Init event

d) In a method that handles the PreRender event

8. You write the following code in your Web page:

protected void Page\_Load

(object sender, EventArgs e)

{

/\* additional code here \*/

}

You expect this code to be executed in response to the Load event of the ASP.NET page. However, when you request the page, you notice that the method is not executed. What should you do to make sure that the Page\_Load method is executed when the Load event of the Web page is fired?

a) Set the AutoEventWireup attribute of the @Page directive to true.

b) Set the AutoEventWireup attribute of the @Page directive to false.

c) Set the IsCallBack property of the Page class to true.

d) Set the IsPostBack property of the Page class to true.

9. You need to display specific messages to the users when their browser is not running JavaScript. Which of the following code segment should you use?

a) <script runat="server"> … </script>

b) <script> ... </script>

c) <% … %>

d) <noscript> ... </noscript>

10. You are developing an ASP.NET application using C#. On your Web page, you want to display the results returned by a C# method named GetShipmentStatus when the page is rendered to the client. Which of the following code segments should you use to call the GetShipmentStatus method?

a) <script language="c#" runat="server">

Response.Write(GetShipmentStatus());

</script>

b) <script language="c#" runat="client">

Response.Write(GetShipmentStatus());

</script>

c) <script language="c#">

Response.Write(GetShipmentStatus());

</script>

d) <%= GetShipmentStatus() %>

11. You are developing an ASP.NET application using C#. You create a code-behind class named Status that contains the business logic. This class is under the namespace Northwind and is stored in a file named status.aspx.cs. You need write the user interface code that uses this class. Which of the following code segments should you use?

a) <% Page Language="c#" Codebehind="status.aspx.cs" ClassName="Northwind.Status" %>

b) <% Page Language="c#" Codebehind="status.aspx.cs" Inherits="Northwind.Status" %>

c) <% Page Language="c#" Src="status.aspx.cs" Inherits="Northwind.Status" %>

d) <% Page Language="c#" Src="status.aspx.cs" ClassName="Northwind.Status" %>

13. You are developing an order-entry application that will be used by all employees in your company. You use ASP.NET to develop this application and deploy it on the company’s Internet Information Services (IIS) server. What should you install on the users’ computers before they can access the order-entry application?

a) .NET Framework redistributable

b) .NET Framework Software Development Kit (SDK)

c) Visual Studio Express Edition

d) Web browser

14. You create an ASP.NET Web Service that tracks the shipment of orders. The Web service includes a class named StatusService, which contains the following method:

public string GetStatus()

{

/\* additional code here \*/

}

You note that you can instantiate the StatusService class from a Web service client project, but the GetStatus method is not available. What could be the problem?

a) Only properties can be part of the public interface of a Web service.

b) You must mark the method with the WebService attribute.

c) The methods of a Web service can return only object data.

d) You must mark the method with the WebMethod attribute.

15. You have created a new Web service that provides mapping data. You are working in a Visual Studio environment and use C# as your programming language. You need to test the Web service to ensure that it is returning correct results. What is the easiest way to test your new Web service?

a) Copy and paste the Web service code into an ASP.NET Web Application. Run the Web application to see the results.

b) Invoke the Web service from an ASP.NET client. Run the Web application to see the results.

c) Run the Web services project from within Visual Studio and use the test page that is displayed in the Web browser.

d) Have a large number of beta testers use the Web service and check for incorrect results.

16. You are developing an ASP.NET application that calls a Web service to retrieve earthquake predictions for a given geographical area. The Web service performs complex, time-consuming calculations to generate the predictions. It is hosted on a government Web server, where you have permission only to invoke the Web service. The users of your Web application complain that the user interface freezes when they attempt to retrieve the predictions. You have full access to the Web server that hosts your ASP.NET application. Which of the following approach should you use to resolve this issue?

a) Move the ASP.NET application to a faster computer.

b) Connect to the Web service over a faster Internet connection.

c) Install additional memory on the Web server that hosts the ASP.NET application.

d) Use asynchronous calls to invoke the Web service from within your ASP.Net application

17. You are developing an ASP.NET application that calls a Web service to retrieve inventory information. You know the URL of the Web service. You need to invoke the methods of this Web service within your Web application. How can you generate the client-side proxy classes so that you can use the Web methods?

a) Use the Web service discovery tool.

b) Copy the .ASMX file from the Web server to the ASP.NET application project.

c) Copy the build output from the Web server to the ASP.NET application project.

d) Set a Web reference to point to the Web service.

19. You are developing an ASP.NET application that uses a Web service created by one of your large customers. This Web service provides you with the Order object, which has several properties. The developer of the Web service has informed you that a new property named Priority has been added to the Order object. What should you do to be able to use the Priority property in your code with minimum effort?

a) Create a new ASP.NET application and add a Web reference to the Web service in the new application.

b) Delete and re-create the Web reference in the existing ASP.NET application.

c) Update the Web reference in the existing ASP.NET application.

d) Ask the developer of the Web service for the updated DLL file of the Web service. Add a reference to the DLL in your ASP.NET project.

20. You develop a new ASP.NET inventory application on the Northwind Web server. You deploy the files in the folder c:\WebInventory. The application should be available via the URL [www.northwind.com/inventory](http://www.northwind.com/inventory). The URL [www.northwind.com](http://www.northwind.com) is already set up to point to the Northwind Web server. What should you do to make your inventory application available at the expected URL?

a) Change the name of the directory c:\WebInventory to c:\Inventory.

b) Create a virtual directory named Inventory and point it to c:\WebInventory.

c) Create a virtual directory named WebInventory and point it to c:\Inventory.

d) Move the directory c:\WebInventory to the c:\inetpub\wwwroot directory.

**Lesson 5: Understanding Desktop Applications**

4. You are developing a Windows application. The user needs to work with multiple windows of the application at the same time and needs a simplified interface. The application needs to be compatible with different display configurations, such as multiple monitors. Which of the following interfaces should you create?

a) Create a Multiple Document Interface (MDI) Application. Open a single instance of the application.

b) Create a Single Document Interface (SDI) Application. Open a single instance of the application.

c) Create a Single Document Interface (SDI) Application. Open multiple instances of the application.

d) Create a Multiple Document Interface (MDI) Application. Open multiple instances of the application.

5. You need an application that updates the inventory every morning when you log in to the workstation. If an error occurs during update, the application needs to log messages to a text file. The application doesn’t need any user interaction. You want to automate the process that launches the application. You want to minimize the efforts for developing, installing, and updating the application. Which type of application should you create?

a) Windows Service

b) Windows Form

c) Web Form

d) console application

7. You are developing an application that receives orders over the Internet via Electronic Data Interface (EDI). The application needs to run constantly the background and wait for orders. There is no user interface. The application writes messages to the Windows application event log. The application must continue to run even after a user logs off from the computer. Which type of application should you develop for this requirement?

a) Windows Service application

b) Windows Forms application

c) console application

d) Web application

8. You are developing an application that writes messages to the Windows application event log for the local machine. What should you use to view the messages written by the application?

a) Event Viewer

b) Notepad

c) XPS Viewer

d) Remote Desktop Connection

9. You are developing a new Windows service application. The application contains three different Windows services. Each service will have a different start type. Which of the following classes will help you perform the installation tasks specific to each service? You must suggest a solution that requires the least coding effort.

a) System.ServiceProcess.ServiceProcessInstaller

b) System.ServiceProcess.ServiceInstaller class

c) System.Configuration.Installer class

d) System.Configuration.Installer.ComponentInstaller class

11. You are developing a new Windows service application. The application contains three different Windows services. Before these services can be used, they must be installed in the Windows service database. What action should you take to ensure that your services can be installed by a Windows installer tool?

a) Copy the service assembly to the global assembly cache.

b) Add an event log installer to the Windows service project.

c) Inherit the service from a ServiceBase class.

d) Add a service installer to the Windows service project.

13. You are updating an existing Windows Forms application. The form hosts a DateTimePicker control named dateTimePicker1. You need to write code that executes when the value of the dateTimePicker1 control is changed. You write a method, ProcessValueChanged, that contains the code you want to execute. What code should you write to invoke the ProcessValueChanged method? Any code that your write must not affect existing functionality of the application.

a) dateTimePicker1.ValueChanged += new System.EventHandler(

ProcessValueChanged);

b) dateTimePicker1.ValueChanged = new System.EventHandler(

ProcessValueChanged);

c) dateTimePicker1.Value += new System.EventHandler(

ProcessValueChanged);

d) dateTimePicker1.Value = new System.EventHandler(

ProcessValueChanged);

14. You have developed a Windows service that needs to access data stored in the Windows Registry. Which of the following accounts should you use for running this Windows service?

a) LocalSystem

b) NetworkService

c) LocalService

d) User (where the UserName property is set to a member of non-administrator role)

17. You are developing an application that will be run from the command line. Which of the following methods would you use for getting input from to the command line?

a) File.Read

b) File.Write

c) Console.Read

d) Console.Write

19. You need to start a Windows service named ProcService from the command line. Which command should you use?

a) net start ProcService

b) net pause ProcService

c) net continue ProcService

d) net stop ProcService

20. You have developed a Windows service and need to install it to implement its functionality. Which of the following options should you use to accomplish this task?

a) Visual Studio Server Explorer

b) Services node in the Computer Management window

c) InstallUtil.exe

d) gacutil.exe

**Lesson 6: Understanding Databases**

1. Your application needs to store the customer list in a text file. You want to minimize the size of this disk file and be able to open it in common text editors. Which of the following classes should you use to write the file?

a) StreamReader

b) StreamWriter

c) BinaryWriter

d) XmlWriter

2. Your C# program needs to return the total number of customers in a SQL Server database. The program will be used several times a day. What is the fastest way to return this information from your program? (Select all answers that apply.)

a) Write a SQL query.

b) Write a stored procedure.

c) Use the SqlDataAdapter.Fill method.

d) Use the SqlCommand.ExecuteScalar method.

e) Use the OleDbDataAdapter.Fill method.

3. You need to update the Products table and remove all discontinued products. When the products are discontinued, the value of the field Discontinued is set to true. Which of the following SQL statements should you use to make changes to the Products table?

a) INSERT

b) SELECT

c) UPDATE

d) DELETE

4. You need to update the Region fields for customers whose reference code is "TKY". The updated Region should be set to "Japan". Also, this change should affect only customers who live in Tokyo. Which of the following SQL statement should you use?

a) UPDATE Customers

SET Region = 'Japan'

WHERE RefCode = 'TKY'

AND City = 'TOKYO'

b) UPDATE Customers

SET Region = 'Tokyo'

WHERE RefCode = 'TKY'

AND City = 'Japan'

c) UPDATE Customers

SET Region = 'Tokyo'

WHERE RefCode = 'TKY'

d) UPDATE Customers

SET Region = 'Japan'

WHERE RefCode = 'TKY'

5. You are developing an application that needs to retrieve a list of customers and their orders from a SQL Server database. After the list is retrieved, you should be able to display this data, even when a connection to the SQL Server is not available. Which of the following classes should you use to hold the data?

a) DataAdapter

b) DataSet

c) DataView

d) SqlDataReader

7. You are developing an application that needs to copy data from a SQL Server table to a DataSet. Which of the following methods should you use to copy the data?

a) Fill

b) FillSchema

c) GetFillParameters

d) Update

8. You are developing an application that manages customers and their orders. Any solution that you develop must take the least amount of effort but offer the best performance.. Which of the following situations is not a good candidate for implementation with stored procedures in your application?

a) Retrieving the list of all customers in the database

b) Retrieving the list of all orders for particular customers

c) Inserting a new order into the Orders table

d) Ad hoc querying by the database administrator

9. Your application connects to a SQL Server database that contains a table called Employees with the following columns:

EmployeeID (int, identity)

EmployeeType (char(1))

EmployeeDate (datetime)

You need to write a query that selects all rows from the table where the EmployeeType value is either C or T. Which statement should you use?

a) SELECT \* FROM Employees

WHERE EmployeeType LIKE ‘[CT]’

b) SELECT \* FROM Employees

WHERE EmployeeType LIKE ‘[C-T]’

c) SELECT \* FROM Employees

WHERE EmployeeType LIKE ‘C’ OR ‘T’

d) SELECT FROM Employees

WHERE EmployeeType IN (‘C’, ‘T’)

10. Your application includes a SqlDataAdapter object named sqlDataAdapter and an OleDbDataAdapter object named oledbdataAdapter. You need to connect to the Employees table of a SQL Server database. Your application also includes a DataSet object named dsEmployees. You need to load the data from the database into the DataSet object. You must select a solution that gives you the best performance. Which of the following lines of code should you choose?

a) dsEmployees = sqlDataAdapter.Fill(“Employees”);

b) dsEmployees = oledbDataAdapter.Fill(“Employees”);

c) oledbDataAdapter.Fill(dsEmployees, "Employees");

d) sqlDataAdapter.Fill(dsEmployees, “Employees”);

11. Your application includes a SqlDataAdapter object named sqlDataAdapter that connects to the Employees table. You use the Fill method to retrieve the data from the Employees table. The SqlDataAdapter's Connection property is set to a valid connection to the SQL Server database, but the connection is in the closed state. Which of the following statements is true about the working of the Fill method?

a) The Fill method will throw an exception because the connection is closed.

b) The Fill method will open the connection, read the data, and leave the connection open.

c) The Fill method will open the connection, read the data, and leave the connection closed.

d) The Fill method will return an empty resultset because the connection is closed.

13. You are designing a database for your company. You are reviewing the normalization for the database tables. You review the following Orders table:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| OrderId | CustomerId | OrderDate | FirstName | LastName |
| 101 | 1 | 10/1/2010 | Jane | Doe |
| 102 | 2 | 10/5/2010 | John | Doe |
| 103 | 1 | 10/4/2010 | Jane | Doe |

Which of the following statement is true for the Orders table?

a) It meets the requirements for the first normal form.

b) It meets the requirements for the second normal form.

c) It meets the requirements for the third normal form.

d) It meets the requirements for the fourth normal form.

14. You are designing a database for your company and are reviewing the normalization for the database tables. You review the following Customer table:

|  |  |  |  |
| --- | --- | --- | --- |
| Id | FirstName | LastName | PhoneNumber |
| 1 | Jane | Doe | (503) 555-6874 |
| 2 | John | Doe | (509) 555-7969, (509) 555-7970 |
| 3. | Howard | Steel | (604) 555-3392, (604) 555-3393 |

Which of the following statements is true?

a) The Customer table meets the requirements for the first normal form.

b) It meets the requirements for the second normal form.

c) It meets the requirements for the third normal form.

d) It is not normalized.

15. You are designing a database for your company and are reviewing the normalization for the database tables. You review the following Customer table:

|  |  |  |
| --- | --- | --- |
| Id | FirstName | LastName |
| 1 | Jane | Doe |
| 2 | John | Doe |
| 3 | Howard | Steel |

Which of the following statements is true?

a) The highest normal form of the Customer table is the first normal form.

b) The highest normal form of the Customer table is the second normal form.

c) The highest normal form of the Customer table is the third normal form.

d) The Customer table is not normalized.

16. As you design a database for your company, you review the normalization rules for the database tables. You need to ensure that your table design meets the requirements for the third normal form. Which of the following statements must be true for your tables? (Choose all that apply.)

a) None of the columns in the table should have multiple values in the same row of data.

b) All non-key columns are functionally dependent on the entire primary key.

c) At least one non-key column is functionally dependent on the entire primary key.

d) Non-key attributes don’t share any functional dependency.

e) Non-key attributes share functional dependency.

17. You are designing database for a new Web application. You need to identify appropriate relational database structure to satisfy business requirements. Which of the following activities should you *not* perform as part of the design process?

a) Identify tables and columns.

b) Choose primary keys for the tables.

c) Identify table relationships.

d) Apply the normalization process.

e) Write stored procedures.

20. You are developing an application that stores data in SQL Server 2005 database. You need to write a query that retrieves all orders in the orders table that were placed on January 1, 2011. You write the following query:

SELECT \* FROM Orders

WHERE OrderDate = 01/01/2011

The statement executes without any error but does not return any data. You are certain that the database contains order from this date. How should you correct the SQL statement?

a) SELECT \* FROM Orders

WHERE OrderDate = #01/01/2011#

b) SELECT \* FROM Orders

WHERE OrderDate = %01/01/2011%

c) SELECT \* FROM Orders

WHERE OrderDate = '01/01/2011'

d) SELECT \* FROM Orders

WHERE OrderDate = "01/01/2011"