Delegate In C Sharp.NET

1 Which of the following statements are correct about delegates? I. Delegates are not type-safe. II. Delegate is a user-defined type. III. Only one method can be bound with one delegate object. IV. Delegates can be used to implement callback notification. V. Delegates permit execution of a method on a secondary thread in an asynchronous manner.

(A) 1 and 2 only.
(B) 1, 2 and 3 only.
(C) 2, 4 and 5 only.
(D) 4 and 5

Answer : (C)
Solution :
Delegates can be used to define callback methods.Suppose if you have multiple methods with same signature (return type & number of parameters) and want to call all the methods with single object then we can go for delegates.

2 In which of the following areas are delegates commonly used? I. Remoting. II. Serialization III. File Input/Output IV. Multithreading V. Event handling

(A) 1 and 2 only
(B) 1 and 5 only
(C) 1 and 5 only
(D) 4 and 5 only

Answer : (D)
Solution :
In multithreading and event handling we can pass functions by using delegates.

3 A delegate defines.

(A) a Washington representative
(B) a class that encapsulates methods
(C) a means of passing arrays into methods
(D) a substitute for an inherited method

Answer : (B)
Solution :
Delegate is a type which holds the method(s) reference in an object. it is also referred to as a type safe function pointer.Encapsulating the methods call from callerEffective use of delegate improves the performance of application.Used to call a method asynchronously.

4 Can we use delegate to implement a callback notification?

(A) Yes
(B) No

Answer : (A)

Solution :

The use of callbacks is a programming technique in whichone part of an application sends out notifications to alert other parts of the application whenever something interesting has occurred. To be more specific, a callback is a method that isimplemented by one or more handlers and is then executed by a notification source. An event handler is a simple example of a callback method. When you write an event handler for the click event of a command button, you are writing the implementation for callback method. However, you are not required to explicitly call the event handler.

5 Which of the following statements are correct about delegates?

(A) Delegates cannot be used to call a static method of a class.

(B) Delegates cannot be used to call procedures that receive variable number of arguments.

(C) If signatures of two methods are same they can be called through the same delegate object.

(D) Delegates cannot be used to call an instance function. Delegates cannot be used to call an instance subroutine.

Answer : (B)

Solution :

The delegate code can also reference local variables of the function in which they are declared.

6 Which of the following is the necessary condition for implementing delegates?

(A) Class declaration

(B) Inheritance

(C) Run-time Polymorphism

(D) Exceptions

Answer : (A)

Solution :

For using a delegate we need a class which contains functions to bind to delegates.

7 delegate is a....

(A) reference type

(B) value type

(C) both

(D) none of above

Answer : (A)

Solution :

Delegate is a class that can hold a reference to a method or a function.Delegate class has a signature and it can only reference those methodswhose signature is compliant with the class.

8 A(an)...is the encapsulation of the idea that "something happened" to which the program must respond.

(A) Event

(B) Delegate

(C) event-delegate model

(D) None of above

Answer : (A)

Solution :
Events help to solve the delegate encapsulation problem. Events sit on top of delegates and provide encapsulation so that the destination source can only listen and not have full control of the delegate object. Method and functions are abstracted /encapsulated using delegates Delegates are further extended to provide broadcasting model by using multicast delegate.Multicast delegate are further encapsulated using events.

9 A delegate is?

(A) a means of passing arrays into methods
(B) a substitute for an inherited method
(C) a class that encapsulates methods
(D) None of above

Answer : (C)
Solution :
A delegate is a type that encapsulates one or more methods. You can invoke all the methods the delegate is encapsulating with a single call, whenever you wish.

10 What is a purpose of a delegate?

(A) To spawn an additional thread to provide parallel processing
(B) To copy member methods and properties from an existing class
(C) To enable an assembly to respond to an event that occurs within a class
(D) To provide identical member methods and properties from multiple related classes.

Answer : (C)
Solution :
A delegate does not 'do' anything. Creating a delegate does not change anything. A delegate is just a type of variable. Delegates can be used without events.

11 Which of the following are the correct ways to declare a delegate for calling the function func() defined in the sample class given below? class Sample { public int func(int i, Single j) { } }

(A) delegate d(int i, Single j);
(B) delegate void d(int, Single);
(C) delegate int d(int i, Single j);
(D) delegate void (int i, Single j);

Answer : (C)
Solution :
The Purpose of delegate object can be used in to code which can call the referenced method, without having to know at compile time which method will be invoked. For that the signature of the delegate (including no. of parameters with data type to be matched)

12 An event declaration defines a type that encapsulates a method with a particular set of arguments and return type.

(A) True
(B) False

Answer : (B)

Solution :

Events help to solve the delegate encapsulation problem. Events sit on top of delegates and provide encapsulation so that the destination source can only listen and not have full control of the delegate object. The first problem with the way we are raising the event above is that Main() is raising an event directly that is defined in another class (namely, My Delegates). This is not good design. It is My Delegates event, so that should be the only class that can raise it directly.

13 Is the following true about Event in c#?

(A) Events allow you to specify that when external event occurs, such as a mouse click, a delegate method should always be e

(B) You can define custom events in any program.

(C) An event in c# is a way for a class to provide notification to clients of that class when some interesting thing happens to an

(D) All of the above.

Answer : (D)

Solution :

Events are basically a user action like key press, clicks, mouse movements, etc., or some occurrence like system generatednotifications. Applications need to respond to events when they occur.For example,interrupts. Events are used for inter-process communication. The events are declared and raised in a class and associated with the event handlers using delegates within the same class or some other class. The class containing the event is used to publish the event. To declare an event inside a class, first a delegate type for the event must be declared. For example, public delegate void Boiler LogHandler(string status);

14 A delegate can either be called asynchronously by using Begin Invoke and End Invoke methods.

(A) True

(B) False

Answer : (A)

Solution :

Delegates is asynchronous method calls. You can call methods and functions pointed by delegate asynchronously. Asynchronous calling means the client calls the delegate and the control is returned back immediately for further execution. The delegate runs in parallel to the main caller. When the delegate has finished doing his work he makes a call back to the caller intimating that the function / subroutine has completed executing. To invoke a delegate asynchronously we need call the begin invoke method. In the begin invoke method we need to specify the call back method which is Callback Method currently. EndInvoke This method will be called once the delegate finishes his task.

15 Is the following true about predicate? Represents the method that defines a setof criteria and determines whether the specified object meets those criteria

(A) Yes

(B) No

Answer : (A)

Solution :

Following are the example of the predicate Predicate<int>predicate = value => value == 5; Console.WriteLine(predicate.Invoke(4)); Console.WriteLine(predicate.Invoke(5)); This example program uses the predicate generic delegate type with an int type parameter. It uses a lambda expression to specify that the function returns true when the argument is equal to 5.

16 Which of the following statements are correct about a delegate? I. Inheritance is a prerequisite for using delegates. II. Delegates are type-safe. III. Delegates provide wrappers for function pointers. IV. The declaration of a delegate must match the signature of the method that we intend to call using it. V. Functions called using delegates are always late-bound.

(A) 1 and 2 only.
(B) 1, 2 and 3 only
(C) 2, 3 and 4 only
(D) All of the above

Answer : (C)
Solution :
Delegates are like function pointers but are type safe. Delegates allow methods to be passed as parameters.Delegates can be used to define callback methods. Delegates can be chained together; for example, multiple methods can be called on a single event. Methods do not have to match the delegate type exactly. For more information, see Using Variance in Delegates

17 An Event is.

(A) The result of a users action
(B) result of a party
(C) code to force users action

Answer : (A)
Solution :
As compared to delegates events works with source and listener methodology. So listeners who are interested in receiving some events they subscribe to the source. Once this subscription is done the source raises events to its entire listener when needed. One source can have multiple listeners.

18 Which of the following statements is incorrect about delegate?

(A) Delegates are reference types.
(B) Only one method can be called using a delegate.
(C) Delegates are type-safe.
(D) Delegates serve the same purpose as function pointers in C and pointers to member function operators in C++.

Answer : (B)
Solution :
There are two types of delegates: Unicast and Multicast delegates.In Unicast ,at time only one method is associated with single cast delegate. In Multicast delegate, at a time two or more methods is associated with delegates. i.e a delegate is refrencing to two or more methods.

19 Do we always need to define custom event arguments type?

(A) Yes
(B) No

Answer : (B)
Solution :
We need to define custom event argument class when we are absolutely sure that we need to pass the data to the events handlers otherwise event Args class is good to use.

20 -= operator is used to remove a delegate from a (possibly composite) field.

(A) True
(B) False

Answer : (A)

Solution :

The class that is automatically created with the delegate keyword in the initial declaration of the delegate type has overloaded the += and -= operators. They have been overloaded to allow methods tobe added and removed from the delegates (the Perform Action class) invocation list.