### MCQs on Object-Oriented Programming in C#

1. \*\*Which of the following is a feature of Object-Oriented Programming?\*\*

- A) Encapsulation

- B) Procedural Programming

- C) Function Overloading

- D) Polymorphism

- \*\*Answer: A) Encapsulation\*\*

2. \*\*In C#, which keyword is used to define a class?\*\*

- A) class

- B) object

- C) struct

- D) define

- \*\*Answer: A) class\*\*

3. \*\*What does encapsulation provide in object-oriented programming?\*\*

- A) Ability to extend classes

- B) Protection of data within an object

- C) Sharing of methods between objects

- D) Multiple inheritance

- \*\*Answer: B) Protection of data within an object\*\*

4. \*\*Which of the following keywords is used to inherit a class in C#?\*\*

- A) extends

- B) inherits

- C) base

- D) : (colon)

- \*\*Answer: D) : (colon)\*\*

5. \*\*In C#, what is the default access modifier for class members?\*\*

- A) public

- B) protected

- C) private

- D) internal

- \*\*Answer: C) private\*\*

6. \*\*What is the purpose of the ‘virtual’ keyword in C#?\*\*

- A) To create a new instance of a class

- B) To allow a method to be overridden in derived classes

- C) To prevent a method from being overridden

- D) To hide the base class implementation

- \*\*Answer: B) To allow a method to be overridden in derived classes\*\*

7. \*\*What does the ‘override’ keyword do in C#?\*\*

- A) It defines a new method in a derived class

- B) It changes the access level of a method

- C) It provides a new implementation of a method in a derived class

- D) It prevents the method from being overridden

- \*\*Answer: C) It provides a new implementation of a method in a derived class\*\*

8. \*\*Which of the following is true about an abstract class in C#?\*\*

- A) An abstract class cannot be instantiated

- B) An abstract class must implement all its methods

- C) An abstract class can be instantiated

- D) An abstract class can have no methods

- \*\*Answer: A) An abstract class cannot be instantiated\*\*

9. \*\*In C#, which keyword is used to define an interface?\*\*

- A) interface

- B) class

- C) struct

- D) abstract

- \*\*Answer: A) interface\*\*

10. \*\*What is the main purpose of polymorphism in OOP?\*\*

- A) To hide the internal implementation of an object

- B) To allow objects to be treated as instances of their parent class

- C) To provide multiple inheritance

- D) To restrict access to data

- \*\*Answer: B) To allow objects to be treated as instances of their parent class\*\*

11. \*\*Which of the following statements is correct about constructors in C#?\*\*

- A) Constructors cannot have parameters

- B) Constructors are used to initialize objects

- C) Constructors must have a return type

- D) A class can have multiple constructors with different return types

- \*\*Answer: B) Constructors are used to initialize objects\*\*

12. \*\*Which keyword is used to prevent a class from being inherited?\*\*

- A) abstract

- B) sealed

- C) virtual

- D) static

- \*\*Answer: B) sealed\*\*

13. \*\*What is the default visibility of a class member if no access modifier is specified?\*\*

- A) public

- B) private

- C) protected

- D) internal

- \*\*Answer: D) internal\*\*

14. \*\*What is an interface in C#?\*\*

- A) A class with abstract methods

- B) A class with concrete methods

- C) A contract that classes can implement

- D) A class with static methods only

- \*\*Answer: C) A contract that classes can implement\*\*

15. \*\*In C#, what does the 'new' keyword do in the context of methods?\*\*

- A) Creates a new instance of a class

- B) Hides a base class method in the derived class

- C) Defines an abstract method

- D) Creates a new class

- \*\*Answer: B) Hides a base class method in the derived class\*\*

16. \*\*Which of the following is an example of a method signature in C#?\*\*

- A) `void Method()`

- B) `void Method(int x)`

- C) `void Method(int x, string y)`

- D) All of the above

- \*\*Answer: D) All of the above\*\*

17. \*\*What is a destructor in C# used for?\*\*

- A) To initialize an object

- B) To perform cleanup operations before an object is destroyed

- C) To prevent an object from being destroyed

- D) To define a method signature

- \*\*Answer: B) To perform cleanup operations before an object is destroyed\*\*

18. \*\*Which of the following allows a derived class to access protected members of its base class?\*\*

- A) Public inheritance

- B) Private inheritance

- C) Protected inheritance

- D) Internal inheritance

- \*\*Answer: C) Protected inheritance\*\*

19. \*\*What is method overloading?\*\*

- A) Defining multiple methods with the same name but different parameters

- B) Redefining a method in a derived class

- C) Hiding a method in a base class

- D) Using methods from other classes

- \*\*Answer: A) Defining multiple methods with the same name but different parameters\*\*

20. \*\*Which keyword is used to indicate that a method or property in a derived class should use the same implementation as in its base class?\*\*

- A) base

- B) override

- C) new

- D) virtual

- \*\*Answer: A) base\*\*

21. \*\*What is an abstract method in C#?\*\*

- A) A method that must have a body

- B) A method that has no implementation and must be overridden in a derived class

- C) A method that can be called without creating an object

- D) A method that is used to create an object

- \*\*Answer: B) A method that has no implementation and must be overridden in a derived class\*\*

22. \*\*Which access modifier allows access to members of a class within the same assembly?\*\*

- A) public

- B) protected

- C) private

- D) internal

- \*\*Answer: D) internal\*\*

23. \*\*What is the purpose of the ‘static’ keyword in C#?\*\*

- A) To define a method that can be overridden

- B) To define a method that belongs to the class rather than an instance

- C) To prevent a class from being inherited

- D) To create an instance of a class

- \*\*Answer: B) To define a method that belongs to the class rather than an instance\*\*

24. \*\*What is the result of creating an instance of a class that has only a private constructor?\*\*

- A) It creates an object successfully

- B) It causes a compilation error

- C) It causes a runtime error

- D) It calls the default constructor

- \*\*Answer: B) It causes a compilation error\*\*

25. \*\*Which of the following is NOT a principle of object-oriented programming?\*\*

- A) Abstraction

- B) Inheritance

- C) Polymorphism

- D) Compilation

- \*\*Answer: D) Compilation\*\*

26. \*\*What is the base class for all classes in C#?\*\*

- A) System.Object

- B) System.Class

- C) System.Base

- D) System.Core

- \*\*Answer: A) System.Object\*\*

27. \*\*How do you specify that a class member should be accessible from derived classes but not from other classes?\*\*

- A) Use the ‘public’ keyword

- B) Use the ‘private’ keyword

- C) Use the ‘protected’ keyword

- D) Use the ‘internal’ keyword

- \*\*Answer: C) Use the ‘protected’ keyword\*\*

28. \*\*Which operator is used to call a base class constructor in C#?\*\*

- A) `base`

- B) `this`

- C) `new`

- D) `super`

- \*\*Answer: A) `base`\*\*

29. \*\*What happens if a method is declared as ‘abstract’?\*\*

- A) It must be implemented in the same class

- B) It cannot be called directly and must be overridden in a derived class

- C) It provides a default implementation

- D) It hides the base class method

- \*\*Answer: B) It cannot be called directly and must be overridden in a derived class\*\*

30. \*\*Which keyword

is used to explicitly hide a base class member?\*\*

- A) base

- B) override

- C) new

- D) virtual

- \*\*Answer: C) new\*\*

31. \*\*What is the purpose of the ‘sealed’ class in C#?\*\*

- A) To allow the class to be inherited

- B) To prevent the class from being instantiated

- C) To prevent the class from being inherited

- D) To allow the class to be used in other assemblies

- \*\*Answer: C) To prevent the class from being inherited\*\*

32. \*\*What does the ‘dynamic’ keyword do in C#?\*\*

- A) It provides compile-time type checking

- B) It allows the type of a variable to be determined at runtime

- C) It creates a variable with a fixed type

- D) It prevents the variable from being changed

- \*\*Answer: B) It allows the type of a variable to be determined at runtime\*\*

33. \*\*Which keyword is used to implement multiple interfaces in a class?\*\*

- A) implements

- B) extends

- C) interface

- D) ,

- \*\*Answer: D) ,\*\*

34. \*\*What is the purpose of the ‘using’ statement in C#?\*\*

- A) To include namespaces in a class

- B) To automatically manage resource disposal

- C) To define a new class

- D) To specify the access level of a class

- \*\*Answer: B) To automatically manage resource disposal\*\*

35. \*\*What is method overriding?\*\*

- A) Redefining a method with the same name but different parameters

- B) Providing a new implementation of a method in a derived class

- C) Hiding a method in the base class

- D) Calling a method from the base class

- \*\*Answer: B) Providing a new implementation of a method in a derived class\*\*

36. \*\*What does the ‘protected internal’ access modifier mean?\*\*

- A) Accessible within the class and its derived classes, and within the same assembly

- B) Accessible only within the class and its derived classes

- C) Accessible only within the same assembly

- D) Accessible from any code

- \*\*Answer: A) Accessible within the class and its derived classes, and within the same assembly\*\*

37. \*\*In C#, what does the ‘default’ keyword do in the context of constructors?\*\*

- A) It defines a parameterless constructor

- B) It initializes an object with default values

- C) It hides a constructor in the derived class

- D) It creates a new instance of the class

- \*\*Answer: A) It defines a parameterless constructor\*\*

38. \*\*Which of the following can be used as a base class for other classes?\*\*

- A) A concrete class

- B) An abstract class

- C) An interface

- D) All of the above

- \*\*Answer: D) All of the above\*\*

39. \*\*How can you create a copy of an object in C#?\*\*

- A) By using the ‘clone’ method

- B) By using the ‘copy’ method

- C) By using a copy constructor

- D) By creating a new instance of the class

- \*\*Answer: C) By using a copy constructor\*\*

40. \*\*What is the purpose of the ‘this’ keyword in C#?\*\*

- A) To refer to the current instance of a class

- B) To call a base class constructor

- C) To define a new class

- D) To hide a method in the base class

- \*\*Answer: A) To refer to the current instance of a class\*\*

41. \*\*What does the ‘new’ keyword do when used with a class?\*\*

- A) It hides the base class implementation of a member

- B) It defines a new instance of a class

- C) It creates a new class

- D) It extends an existing class

- \*\*Answer: B) It defines a new instance of a class\*\*

42. \*\*What does the ‘is’ keyword do in C#?\*\*

- A) Checks if an object is of a certain type

- B) Creates a new instance of a type

- C) Defines a new type

- D) Hides a type

- \*\*Answer: A) Checks if an object is of a certain type\*\*

43. \*\*What is the purpose of the ‘base’ keyword in C#?\*\*

- A) To call a method in the current class

- B) To refer to the base class of the current class

- C) To create a new base class

- D) To define a base type

- \*\*Answer: B) To refer to the base class of the current class\*\*

44. \*\*What does the ‘params’ keyword do in C#?\*\*

- A) Allows a method to take a variable number of arguments

- B) Defines default parameters for a method

- C) Specifies the type of parameters for a method

- D) Limits the number of parameters a method can accept

- \*\*Answer: A) Allows a method to take a variable number of arguments\*\*

45. \*\*What does the ‘readonly’ keyword indicate about a field in C#?\*\*

- A) The field can be assigned only during initialization or in a constructor

- B) The field can be changed at any time

- C) The field is read-only and cannot be modified

- D) The field can only be accessed from within the class

- \*\*Answer: A) The field can be assigned only during initialization or in a constructor\*\*

46. \*\*How can you make a class in C# thread-safe?\*\*

- A) By using the ‘volatile’ keyword

- B) By using synchronization mechanisms such as locks

- C) By making all members of the class static

- D) By using the ‘static’ keyword for the class

- \*\*Answer: B) By using synchronization mechanisms such as locks\*\*

47. \*\*What is the difference between ‘abstract’ and ‘interface’ in C#?\*\*

- A) Abstract classes can have fields and constructors, while interfaces cannot

- B) Interfaces can have fields, while abstract classes cannot

- C) Abstract classes can be instantiated, while interfaces cannot

- D) Interfaces can have constructors, while abstract classes cannot

- \*\*Answer: A) Abstract classes can have fields and constructors, while interfaces cannot\*\*

48. \*\*Which keyword is used to specify that a method should be executed asynchronously?\*\*

- A) async

- B) await

- C) new

- D) virtual

- \*\*Answer: A) async\*\*

49. \*\*What is the result of using a class that implements an interface but does not provide an implementation for all its methods?\*\*

- A) The class will compile successfully

- B) The class will cause a compilation error

- C) The class will run with default implementations

- D) The class will be considered an abstract class

- \*\*Answer: B) The class will cause a compilation error\*\*

50. \*\*How do you declare an enum in C#?\*\*

- A) `enum Days { Monday, Tuesday, Wednesday }`

- B) `enum Days() { Monday, Tuesday, Wednesday }`

- C) `enum Days : int { Monday, Tuesday, Wednesday }`

- D) `class enum Days { Monday, Tuesday, Wednesday }`

- \*\*Answer: A) enum Days { Monday, Tuesday, Wednesday }\*\*