

Q.P. CODE: 35224

(3 Hours)

[Total Marks: 100]

- N. B.: (1) **Question No. 1 is compulsory.**
(2) Attempt **any four** from **Question Nos. 2 to 7.**
(3) Make **suitable assumptions** wherever necessary and **state the assumptions made.**
(4) Answers to the **same question** must be **written together.**
(5) **Numbers** to the right indicate marks.
(6) Draw **neat labeled diagrams** wherever **necessary.**

- 1 a Write short note on .NET framework. 5
b List and explain various data types in c#. 5
c Explain about command line arguments in brief. 5
d Explain enumerations with example. 5
- 2 a Write a program to print the following pattern using nested for loop. 8
1
3 2
5 4 3
7 6 5 4
9 8 7 6 5
b Explain various types of constructors with example. 6
c Explain relational and logical operators in detail. 6
- 3 a What is a loop? Explain 'while' loop and 'foreach' loop with example. 8
b List various types of method parameters in c#. Explain any two of them with example. 6
c Write short notes on: 6
i. Variable size array
ii. ArrayList class
- 4 a Write a program to create an abstract class Car with data members manufacturer, model and price. Include relevant constructors for the initialization of these data members. It also has an abstract method primeFeatures() for displaying the prime features of cars. From this class derive another class called LuxuryCar which has bool type data members seat_ventilation, seat_massager, multi_function_steering_wheel and navigation_system to record whether these features are available or not. Create an object of LuxuryCar and print its features from Main method. 8
b Differentiate between interfaces and abstract classes. 6
c What is the difference between method overriding and method overloading? Explain method overriding with example. 6

- 5 a Write a program that prints the abbreviation of a given string. Say for example, if the input string is "bharat sanchar nigam limited", its abbreviation will be printed as "BSNL". 8
- b Explain inclusion polymorphism with example. 6
- c What is an Indexer? Explain read-write Indexer with an example. 6
- 6 a What is a delegate? Explain multicast delegate with an example. 8
- b Write short notes on each of the following: 6
- i. general catch handler
- ii. finally block
- iii. checked exceptions
- c What is the general format of the standard numeric format? Explain currency formatting and integer formatting with example. 6
- 7 a Design a class ComplexNumber with two integer data members that represent real and imaginary parts of a complex number. Include relevant constructors and a method to display a complex number in "real+i imaginary" format. Also define relevant operator methods inside the ComplexNumber class to perform the following operations from the Main method. 8
- ComplexNumber c1=new ComplexNumber(3,4);
- ComplexNumber c2=new ComplexNumber(8,1);
- ComplexNumber c3=c1+c2;
- ComplexNumber c4=c1-c2;
- c4++;
- b What are immutable strings? Explain methods of String class, for comparing and concatenating two strings. 6
- c What are interfaces? Explain explicit interface implementation with example. 6
