(2½ Hours) [Total Marks: 75]

N. B.: (1) **All** questions are **compulsory**.
     (2) Make **suitable assumptions** wherever necessary and **state the assumptions** made.
     (3) Answers to the **same question** must be **written together**.
     (4) Numbers to the **right** indicate **marks**.
     (5) Draw **neat labeled diagrams** wherever **necessary**.
     (6) Use of **Non-programmable** calculators is **allowed**.

1. **Attempt *any three* of the following:** 15
a. Explain various components of CLR (Common Language Runtime) in detail.
b. What is meant by Boxing and Unboxing? Explain it with reference to value type and reference type.
c. Write a short note on Jagged Array supported by Dotnet Framework.
d. Write a short note on namespace in .NET
e. In .NET framework, what are the sealed classes and sealed methods? Why are they used?
f. Compare and contrast between public assembly and private assembly.

2. **Attempt *any three* of the following:** 15
a. Explain the concept of layer architecture of ASP.NET.
b. Explain importance of Global.asax file in ASP.NET applications.
c. Differentiate between List Box and Drop-Down Lists. List and explain any three common properties of these controls.
d. How Ad Rotator component of ASP.NET is helpful to earn revenue? Explain it with demonstration.
e. Explain how SiteMapPath control is used in ASP.NET application.
f. What are the uses of autopostback and runat properties of ASP.NET web controls?

3. **Attempt *any three* of the following:** 15
a. Why exception handling is required? Write syntax for exception handling?
b. What is state management? Explain Application state management of ASP.NET applications.
c. Explain relation between content page and master page.
d. What is meant by Cookies? Explain how it is created and used in ASP.NET application.
e. What is user-defined exception? Explain with example.
f. Various common HTTP status codes and messages are generated during ASP.NET tracing mechanism, Explain each of these HTTP status code.

4. **Attempt *any three* of the following:** 15
a. Write a short note on ADO.NET architecture.
b. Explain following ADO.NET objects.
   (i) Connection   (ii) Command   (iii) Adapter

c. Explain various types of data sources available in ASP.NET.

d. Write a C# code to which display all records from employee table in GridView from database stored in MS SQLServer.

e. With the help of C# code, explain how ListView control can be used to populate data from the table stored in database.

f. What is meant by DataBinding? Explain different types of DataBinding in ASP.NET applications.

5. Attempt _any three_ of the following: 15

a. Write a short note on Windows based and Form based authentication of ASP.NET application.

b. What do you mean by Impersonation in ASP.NET? Explain.

c. What is meant by NuGet Application? Why it is used in web based application?

d. What is meant by Bootstrap application? Explain various features of Bootstrap.

e. Write a short note on the following AJAX components.
(i) ScriptManager (ii) UpdatePanel

f. With demonstration, explain how AJAX based application is created using Timer control.

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