(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. Elaborate the important features of the .NET Framework with suitable explanations.
b. What is namespace? Explain with Example
c. Explain the working of the Jagged Array in C# with a suitable example.
d. Discuss how classes are created in C# and explain advanced class programming concepts.
e. Describe the concept of variables and data types in C#.
f. Explain value types and reference types with examples.

2. Attempt *any three* of the following: **15**

a. Explain the components and architecture of ASP.NET Web Forms.
b. Illustrate the use of navigation controls including TreeView, Menu, and SiteMapPath with examples.
c. Discuss the concept and types of server controls in ASP.NET.
d. Illustrate the use of Calendar and AdRotator controls in ASP.NET with examples.
e. Analyze the role of navigation controls in designing ASP.NET websites.
f. Describe the concept of event handling in ASP.NET Web Forms.

3. Attempt *any three* of the following: **15**

a. Analyze the role of exception handling in C# programs with an example.
b. Describe ViewState and cookies used in ASP.NET.
c. Differentiate between client-side and server-side state management techniques in ASP.NET.
d. Explain the purpose and advantages of master pages in ASP.NET.
e. Analyze the role of tracing and debugging in ASP.NET applications..
f. Describe the methods used for transferring information between pages in ASP.NET.

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4. Attempt *any three* of the following: **15**

a. Illustrate the architecture of ADO.NET with a suitable diagram.
b. Explain the components of the data provider model in ADO.NET.
c. Write ASP.NET code for database insertion using ADO.NET.
d. Describe data source controls used in ASP.NET.
e. Differentiate between DetailsView and FormView controls in ASP.NET.
f. Describe the concept of disconnected data access in ADO.NET.

5. Attempt *any three* of the following: **15**

a. Explain the importance of security requirements in ASP.NET applications.
b. Discuss the Bootstrap framework and its major components.
c. Illustrate the working of the ASP.NET AJAX Control Toolkit with an example.
d. Discuss the installation and basic concepts of NuGet Package Manager.
e. Differentiate between authentication and authorization.?
f. Illustrate partial page refresh using AJAX with a suitable example.

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