(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 the concept of boxing and unboxing
b. Write a short note on namespaces. Explain System namespace.
c. List and explain the services provided by CLR.
d. Write a short note on switch statement. What is fallthrough with respect to switch inC#?
e. In what context for loop is not useful and foreach loop is useful. Explain with example
f. What are partial classes in C#?

2. **Attempt *any three* of the following:** 15
a. Explain ASP.NET Application life cycle.
b. What is post-back event? How can you detect whether a request is a post-back in an ASP.NET application?.
c. Describe other commonly used validation controls in ASP.NET and their uses.
d. How can events be handled in an ASP.NET application? Provide an example.
e. What is site navigation? Explain Menu control and SiteMap Path control
f. What is the difference between Response.Redirect and Server.Transfer? Explain with a suitable example.

3. **Attempt *any three* of the following:** 15
a. What is an exception? How are exceptions handled in an ASP.NET application?
b. Describe the concept of state management in ASP.NET. Why is it necessary to implement state management explicitly?
c. Explain the use of the global.asax file with respect to state management.
d. What is a theme? List the advantages of using a theme in a website.
e. What is the relationship between content page and master page?
f. Write snippet for ASP.NET application to count the total number of visitors who visited an ASP.NET website.

4. **Attempt *any three* of the following:** 15
a. What is the SqlConnection class in ASP.NET? Describe its purpose and provide an example demonstrating its use.
b. What is data binding? Explain single-value data binding and repeated-value data binding.
c. How does the GridView control work in ASP.NET? Explain its various templates, as well as how sorting and paging are implemented.

d. What is a Command object in ASP.NET? Describe its properties and methods, and explain how it is used to interact with a database.
e. Explain (i) ExecuteNonQuery (ii) ExecuteScalar (iii) ExecuteReader.
f. How does a DataSet differ from a DataReader in ASP.NET? Write the key differences between them.

5. **Attempt _any three_ of the following:**   15
a. What is the purpose of AJAX? List its key advantages.
b. What is NuGet? How does it help manage ASP.NET libraries?
c. How is the UpdateProgress control used in AJAX?
d. Explain any five form controls in Bootstrap.
e. What is Bootstrap? Describe the CDN links needed to include it in a project.
f. What is an authentication? Explain forms authentication.