

COMP xxxx (Fall 2006)

FINAL EXAM

Instructor:

Name: _____

ID # _____

Time allowed: 120 minutes.

Read Carefully:

1. Ensure that the instructor listed above is the instructor of your registered section.
2. Ensure your name and ID# are entered on this sheet and on the computer OCR card.
3. Answer all questions in the space provided on the exam.

Marks:

Short Answer Section: / 80 (each short answer is worth 5 or 10 marks)

Long Answer Section: / 20

Total: / 100 Marks

3. What are generics in C#? What is a `DataSet`? What problem do they address?

4. What are data providers in the context of ADO.NET? Identify and briefly describe the four key classes of each provider. Identify the data providers that ship with ASP.NET.

5. What are data source controls? What are their advantages and disadvantages?

6. Discuss the strengths, weaknesses and uses of the GridView, Repeater, and DetailsView data controls.

7. Discuss the features in ASP.NET that can be used to reduce code and markup duplication in the presentation layer.

8. Security in ASP.NET is provided at several levels. Identify and briefly discuss these different security levels in ASP.NET.

9. What is Windows Authentication? What is Forms Authentication? Be sure to briefly discuss their strengths and weaknesses.
10. Describe the ASP.NET 2.0 compilation and execution process. That is, what happens behind the scenes when ASP.NET receives its first request for an ASP.NET page? Don't bother with the application or page life cycle; instead describe how ASP.NET and the .NET Framework compile and execute the page. You can use a diagram to answer this question.

11. What are web services and what role do they play in contemporary software development? Briefly explain the different technologies and standards that they use. [Worth 10 marks].

12. In software design, what is a layer? What is the goal behind using layers? Describe two common layering architectures. [Worth 10 marks]

13. ASP.NET provides several different ways to maintain state in an application. What is state in a web application and why is it needed? Identify and briefly describe each of these different ways. [Worth 10 marks]

Long Answer: (20/100)

1. Given the markup shown just below, complete the code-behind class on the following page that will programmatically data bind the GridView control to show all fields for all customers whose CustomerId matches that selected from the DropDownList. The GridView should only be populated after the user selects a customer from the DropDownList.

```
<%@ Page Language="C#" AutoEventWireup="true" CodeFile="Sample.aspx.cs" Inherits="Sample" %>

<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
  "http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">

<html xmlns="http://www.w3.org/1999/xhtml" >
<head><title>Sample</title></head>
<body>
  <form runat="server" id="form1">
    <asp:DropDownList runat="server" id="drpCustomer" DataSourceId="dsCustomers"
      DataValueField="CustomerId" DataTextField="CustomerName"
      OnSelectedIndexChanged="ChooseCustomer" />

    <asp:GridView ID="grdCustomers" runat="server" AutoGenerateColumns="true" />

    <asp:SqlDataSource ID="dsCustomers" runat="server"
      ConnectionString="..."
      SelectCommand="SELECT CustomerId, CustomerName FROM Customers" />
  </form>
</body>
```

In case you've forgotten the exact ADO.NET API, some sample ADO.NET (in no particular order and not all equally relevant) is included below.

```
string connString = "..."; // don't worry about the connection string details
SqlDataAdapter adapter = new SqlDataAdapter(sql, conn);
SqlParameter param = new SqlParameter("@ID", sId);
SqlCommand cmd= new SqlCommand(sql, conn);
cmd.Parameters.Add(param);
adapter.Fill(ds);
SqlConnection conn = new SqlConnection(connString);
DataSet ds = new DataSet();
conn.Close();
cmd.CommandType = CommandType.StoredProcedure;
SqlDataReader reader = cmd.ExecuteReader();
cmd.ExecuteNonQuery();
cmd.ExecuteScalar();
reader.Close();
SqlTransaction trans = conn.BeginTransaction();
trans.Commit();
string name = (string)reader["CustomerName"];
```

```
using System;  
etc
```

```
public  
{
```

```
}
```