

Advanced Web Technology - Sem I

33 mT-F-1stH10

Con. 3297-10.

2nd June 2010

(REVISED COURSE)

JR-1129

(3 Hours)

[Total Marks : 100

- N.B. (1) Question No. 1 is compulsory.
(2) Answer any four questions from Question Nos. 2 to 7.
(3) All questions carry equal marks.

1. (a) Explain File handling in C# with an example. 10
(b) Differentiate between (any two) :— 10
 - (i) HttpServlet and GenericServlet
 - (ii) Java and .NET
 - (iii)PostBack and CrossPage Posting.

2. (a) Explain the architecture of Dot NET Framework. 10
(b) Write down sample code to explain the following tags in JSP. 10
 - (i) Directives
 - (ii) Declaration
 - (iii) Expression
 - (iv) Scriptlets

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3. (a) Write a C#.NET code which will interact with database and display emp table data in tabular format. 10
(b) Explain the need for JSP technology even with the availability of Servlets. Explain how a server processes the JSP files. 10

4. Write notes on :— 20
 - (a) Assemblies
 - (b) Search engine optimization
 - (c) Web service Architecture
 - (d) Servlet Life Cycle
 - (e) Request dispatching in JSP.

5. (a) Explain Inheritance and polymorphism in C# with an example. 10
(b) Explain validation controls in ASP.NET with example. 10

6. (a) What is the purpose of HttpServletResponse and HttpServletRequest interface? Explain the following methods : 10
getWriter(), setContentType(), setHeader()
(b) Write a C# program to list the directories in a drive selected by user. 10

7. (a) Design a User Registration form for a Recruitment site using ASP.Net. 10
(b) What is cookie ? Design servlet, to count the number of times the page is visited using cookies. 10

- (1) Question No. 1 is compulsory.
 (2) Attempt any four from remaining six questions.
 (3) All questions carry equal marks.

1. a) Explain following terms briefly :- 10
 i) Mutual exclusion 5 pg 297
 ii) Immutable files 7
 iii) Memory Consistency ② ②
 iv) Happened before relation 5
 v) Thrashing 24
- b) How do you make a distributed system transparent to a user? Name different types of transparency. 5
 ii) What is the difference between stateful and stateless servers? When is a stateless server required? 5
2. a) What are idempotent operations? Give two examples. How will you make an operation idempotent? 10
 b) Why is process migration important in distributed systems? What are desirable features of a good process migration mechanism? Explain the mechanism of migration with a diagram. 16 pg 382
3. a) What is a critical section? How will you implement a mutual exclusion algorithm? Describe Ricart and Agrawala's algorithm for mutual exclusion. 10
 b) What is the difference between a procedural call and remote procedure call (RPC)? Explain RPC model fully with a diagram. 10
4. a) Solve any one subdivision : 10
 i) Discuss the relative advantages of full file caching and block-caching models for the data caching mechanisms of distributed file system. 7 ② -
 ii) Describe the architecture of Andrews file system in detail. Explain the concept of Virtual file system layer in AFS. 7 ② -
5. a) What are different types of memory consistencies in a distributed shared memory? What is the difference between sequential and release consistency? Which is preferred and why? 10
 b) What are the main differences between the Load balancing and Load sharing approaches for process scheduling in distributed systems. 6
 b) A distributed system has 3 nodes N1, N2, N3 each having its own clock. The clock at nodes N1, N2 and N3 tick 495,500 and 505 times per Millisecond. The system uses external synchronization mechanism in which all nodes receive real time every 20 seconds from an external file source and readjust their clocks. (What is the maximum clock skew that will occur in this system) 5 pg 286 ✓
6. a) In a fault tolerant communication between client-server, How will you implement exactly-once semantics in following cases: - ② 12
 i) The client-server machines are reliable but the communication links connecting them are unreliable,
 ii) The client-server machines are unreliable but communications links are reliable,
 iii) The client is unreliable but the server and the communication links are reliable
 iv) The client and links are reliable but the server is unreliable.
- b) Explain with diagrams, what is meant by absolute ordering, consistent ordering, and causal ordering of messages. 2
7. Write short notes on any two of the following. 20
 i) Mach operating system. 1
 ii) Light weight RPCs. 2

(3 Hours)

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{ Total Marks : 100

- N.B. (1) Question No. 1 is compulsory.
 (2) Answer any four of the remaining questions.
 (3) Figures to the right indicate full marks.

1. Given is the signature for Function `calculate_price()` 4 20
- ```

calculate_price()
{
 Double baseprice, // baseprice of the vehicle
 Double specialprice, // special model addition
 Double extraprice, // price of the extras
 Int extras, // number of extras
 Double discount) // dealer's discount

```
- To test if the function calculates the correct total price from its input values, you are required to prepare the following :—
- Equivalence classes for integer values.
  - Further partitioning of the equivalence classes of the parameter of the function `calculate_price()` with representatives.
  - Prepare test cases of the function `calculate_price()`.
2. (a) Explain the role of testing in SDLC. Explain System testing and its importance. 2 10  
 (b) Write the different steps involved in the review process. Explain control flow and data flow. 3 10
3. (a) Explain the difference between functional and non-functional testing. Explain load testing, performance testing and stress testing. 5 10  
 (b) Explain the test objectives, test environment and test strategies for unit testing. 2 10
4. (a) Compare black box testing and white box testing. Explain with the help of an example. 10  
 (b) Also explain gray box testing. 4  
 (c) Explain state transition and path coverage testing technique and with an example. 4 10
5. (a) Explain different types of test strategies. Explain Analytical versus Heuristic Approach. 5 10  
 (b) How is test progress monitoring and control done? 5 10
6. (a) Describe tools that can be used for test management and control and for static testing. 6 10  
 (b) Describe criteria for selection and introduction of test tools. 6 10
- Write short notes on any four :— 20
- Agile Methodology 2
  - Intuitive and Experience Based Testing 4
  - Psychology of Testing 1
  - Software Quality 1
  - Fundamental Test Process 1

- N.B. :** (1) Question No. 1 is compulsory.  
 (2) Attempt any four from remaining.  
 (3) Figures on the right indicate full marks

1. (a) Explain in detail IEEE 802.11 System architecture and discuss the services provided by 802.11. (10)  
 (b) Give reasons for a handover in GSM and the problems associated with it. What are the typical steps for handover, what types of handover can occur? (10)
2. (a) Explain CDMA. List the advantages of CDMA over FDM in wireless communication. (10)  
 (b) Describe the three digital modulation techniques – ASK, FSK and PSK. (10)
3. (a) Explain the J2ME architecture. List the limitation of J2ME.  
 What profiles are supported by CLDC configuration? (10)  
 (b) What is WAP? Describe WML and WDP. (10)
4. (a) List the benefits of spread spectrum. Describe Frequency Hopping Spread Spectrum Technique. (10)  
 (b) Explain the term fading in mobile environment. What are the different forms of fading? (10)
5. (a) Discuss the application areas that are supported by Bluetooth.  
 How the security is achieved in Bluetooth. (10)  
 (b) In Bluetooth technology what is a Piconet and Scatternet? What is active state w/s parked state? (10)
6. (a) What are the advantages and disadvantage of Wireless LAN over wired LAN?  
 Explain why CSMA/CD cannot be implemented in wireless LAN (10)  
 (b) Explain the 802.16 protocol architecture for Wireless Broadband in detail (10)
7. Write short notes on the following :- (5x4 = 20)
  - (a) XHTML
  - (b) WCDMA
  - (c) WEP & WAP
  - (d) MIDP.