

MET

INSTITUTE OF COMPUTER SCIENCE

UNIVERSITY QUESTION PAPER (ICS)

EXAM PAPER DEC-2010 (REV)

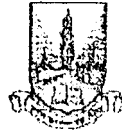
SEM - V



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University of Mumbai



(159)
SECOND HALF 2010



PROGRAMME OF THE MASTER'S DEGREE IN COMPUTER APPLICATIONS (M.C.A.) (SEM V) (REV) EXAMINATION

Candidates for the above examination are requested to be in attendance at the place of examination, fifteen minutes before the time appointed for setting of the first paper and ten minutes before the time fixed for setting of each subsequent paper.

THEY ARE FORBIDDEN TO TAKE ANY BOOK OR PAPER INTO THE EXAMINATION HALL.

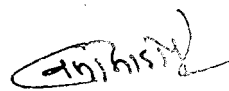
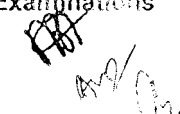
Seat numbers and places of examination will be announced on the college notice boards four days prior to the date of commencement of the examination.

Smoking is strictly prohibited in the examination hall.

The written examination will be conducted in the following order :-

Days and Dates	Time	Paper
Thursday, December 30, 2010	10:30 a.m. to 01:30 p.m.	Software Testing ✓
Monday, January 03, 2011	10:30 a.m. to 01:30 p.m.	Wireless Technology ✓
Wednesday, January 05, 2011	10:30 a.m. to 01:30 p.m.	Distributed Computing ✓
Friday, January 07, 2011	10:30 a.m. to 01:30 p.m.	Advance Web Technologies ✓
Monday, January 10, 2011	10:30 a.m. to 01:30 p.m.	Elective II : Logistics & Supply Chain Management ✓
		Elective II : Multimedia ✓
		Elective II : Cyber Laws & Internet Legislature ×
		Elective II : Knowledge Management ×
		Elective II : Service Oriented Architecture ×

Mumbai - 400 098
8th October, 2010


Prof. Vilas B. Shinde
Controller of Examinations




- N.B. (1) Question No.1 is compulsory
 (2) Answer any 4 of the remaining questions
 (3) Figures to the right indicate full marks

Q.1. Given is the function calculate_price()
 calculate_price (double baseprice, double specialprice, double extraprice, int extras,
 double discount)

```
{
    double addon_discount, result;
    if (extra >= 3) addon_discount = 10;
    else if (extra >= 5) addon_discount = 15;
    else addon_discount = 0;
    if (discount > addon_discount)
        addon_discount = discount;
    result = baseprice / 100.0 * (100 - discount)
        + specialprice +
        extraprice / 100.0 * (100 - addon_discount);
    return(result);
}
```

- a) Draw the control flow graph for this function (10)
 b) Write the test cases for this function using statement coverage, branch coverage and path coverage. (10)

Q.2.(a) What is static analysis? Explain the techniques to do Static analysis? (10)
 (b) What are the anomalies that can be found during Data flow Analysis? For the given code, (10)
 tell the anomalies that it has.

```
void swap(int &a, int &b)
{
    int temp;
    if (a <= b)
    {
        b = temp;
        b = a;
    }
}
```

Q.3.(a) What is the difference between equivalence class partitioning and boundary value technique? In a system designed to work out the tax to be paid: An employee has Rs 4,000 of salary tax free. The next Rs. 15,000 is taxed at 10%. The next Rs. 30,000 after that is taxed at 22%. Any further amount is taxed at 40%. Write test cases using equivalence class partitioning and Boundary Value Analysis technique for the above problem. (10)

(b) What is State Transition Testing Technique? Draw the transition tree for a Stack. (10)

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Q.4.(a) Explain the cost and economy aspects of testing. (10)
 (b) Explain functional and non-functional testing. What is the difference between load, stress and volume testing? (10)

N.B :

Q.5.(a) How should test teams be formed? Explain the benefits and drawbacks of independent testing. What are the models for independent testing? When should you choose which model? (10)
 (b) What are the test tools for dynamic and static testing? (10)

1. a
b

Q.6.(a) Differentiate between Black box and white box testing. Differentiate between Branch condition testing and Condition Determination Testing. (10)
 (b) Explain the test environment, objectives and strategies for Integration testing. (10)

2. a
b
3. a
b

Q.7. Write Short notes (Any four)

(20)

1. Reviews
2. W Model
3. Gray Box testing
4. Software quality Triangle
5. Object Oriented Testing Concepts

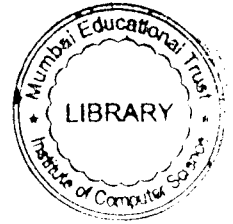
4. a
b
5. a
b
6. a
b
7. a

(REVISED COURSE)

(3 Hours)

[Total Marks : 100

- N.B :
- Question No. 1 is compulsory.
 - Attempt **any four** out of remaining six questions.
 - Each question carries equal marks.
 - Figures to right indicate marks



- What is the reason for a handoff in cellular networks? Explain the various types of handoffs and the strategies used for handoff. 10
 - Discuss the various modulation techniques used in the wireless transmissions. 10
- Explain the various configurations and the profiles supported in J2ME 10
 - Explain CDMA with a suitable example. How is WCDMA different from CDMA. 10
- Explain the various states that a Bluetooth enabled device can move into. 10
 - What are Block Codes and Convolution codes? Explain the (n,k,K) convolution code, what do n , k and K represent? Draw an encoder with values $(2,1,3)$. 10
- What is Fading? Explain the types of fading. How does fading effect the wireless transmission? 10
 - Discuss the architecture and the services provided by the IEEE 802.16. 10
- Describe the WAP Protocol Stack. What are the functions of the different layers in this Protocol Stack? 10
 - Why do you require spreading the spectrum? Explain the different methods of spreading the data and spectrum in a wireless environment. 10
- What is the difference between GSM and GPRS? Explain the architecture of GPRS. 10
 - Discuss the MAC layer of the IEEE 802.11. 10
- Write short notes on the following : 20
 - Antennas
 - Symbian OS
 - XHTML
 - Impairments in Wireless Transmission

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Con. 5966-10.

(REVISED COURSE)

AP-5997

(3 Hours)

[Total Marks : 100

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



- Q1 a) Explain in detail any two of the followings :
 i.) Election algorithms 10
 ii). Thrashing
 iii). Distributed Operating system
- b) i) What is a stub ? 5
 ii) Explain Happened-before relationship 5
- Q2 a.) Explain bully algorithm in detail with diagram. 10
- b) Differentiate between strong consistency model and Causal consistency model 10
- Q3 a) Explain fully the concept of preemptive process migration . What are different address space transfer mechanisms used in the process transfer. 10
- b) What are threads? How are they different from processes ? 10
- Q4 a) Discuss the relative advantages and disadvantages of the various data locating mechanisms that may be used in a Distributed shared memory system that uses the Replicated Migrating Blocks(RMB) strategy. 10
- b) Why do most RPC systems support call-by-value semantics for parameter passing . 10
- Q5 a) What is callback RPC facility ? Give an example of an application where this facility may be useful 10
- b) i) 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
 ii) How does a binding agent work in a client-server communication ? 5
- Q6 a) What are the main differences between the Load balancing and Load sharing approaches for process scheduling in distributed systems. 10
- b) Discuss the relative advantages and disadvantages of using full-file caching and block caching models for the data-caching mechanism of a distributed file system 10
- Q7 Write short notes on any two topics: 20
 i) Munin distributed shared memory system
 ii) Mach Distributed System
 iii) Group communication in message passing
 iv) Light Weight RPCs

(REVISED COURSE)

(3 Hours)

[Total Marks = 100



- N.B. :** (1) Question No. 1 is **compulsory**.
 (2) Answer any **four** questions from Q. 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.

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

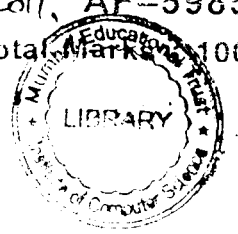
7. (a) Design a User Registration form for a Recruitment site using ASP.Net. 10
 (b) What is cookie ? Design servlet to count the number of times the page is visited using cookies. 10

MCA SEM-IV Dec 20.
Subl. SCM.

(REVISED COURSE) DATE: 10/01/2011 AP-5985

(3 Hours)

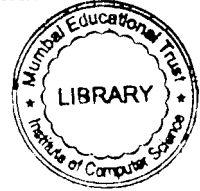
[Total Marks: 100]



- N.B. (1) Question 1 is compulsory
(2) Attempt any four from 2 to 7.
(3) Illustrate answers with sketches wherever required.

1. (a) Consider the purchase of a LG washing machine from Big Bazaar. [08]
Describe the various stages in the supply chain and the different flows or cycles involved.
- (b) Identify the major drivers of supply chain performance. Discuss the role and impact of each driver in creating a strategic fit between the Supply chain strategy and the competitive strategy. [12]
2. (a) Which are the various demand forecasting methods? Explain the static time series method in detail and a brief of each forecasting method. [10]
- (b) Explain JIT and VMI. [10]
3. (a) List the various inventory models and EOQ model. [10]
- (b) "Product packaging is the main selling driver in the FMCG industry." [10]
Comment with focus on the logistics aspect.
4. (a) Why is warehousing becoming an essential service for industries? [08]
- (b) Discuss cross-docking, milk run and pool distribution. [12]
5. (a) What is the role of IT in SCM system? How is data mining used in SCM? [10]
- (b) Identify the different types of distribution networks. Discuss the strengths and weakness of each. [10]
6. (a) Identify the factors influencing supply chain network design decision and explain each factor in brief. [10]
- (b) Explain various modes, participants, formats of transportation and factors influencing transportation. On what basis one should decide what is the best mode of transport? [10]
7. Write short notes on:— [20]
 - (a) Benchmarking in Supply chain
 - (b) Network Optimization model
 - (c) Private Fleet Management
 - (d) Impact of e-business on distribution network.

MCA-SEM-VI-DEC.2010
Subl. Multimedia - DATE-10/10/2011



N.B. (1) question no:-1 is compulsory.

(2) Attempt any four questions from the remaining six questions.

(3) Figures to the right indicate marks.

(4) Illustrate answers with neat sketches wherever required.

- Q. 1 (a) What is Compression? Explain various steps involved in MPEG audio and video compression process. 10 Marks
- (b) A message is consisting of five different symbols ABCDE. The symbol's frequencies are:

Symbol	Frequency
A	24
B	12
C	10
D	8
E	8

Generate a Huffman code tree? Show Weight order and how many bits are required to transmit the complete string ABCDE. 10 Marks

- Q.2 (a) What is Multimedia? Explain various components of Multimedia. 10 Marks
- (b) Explain in detail various principles of animation. 10 Marks
- Q.3 (a) Explain analog display standards and digital display standards in detail. 10 Marks
- (b) Explain video recording and tape formats. 10 Marks
- Q.4 (a) Explain multimedia authoring tools and its different types in detail. 10 Marks
- (b) What do you mean by Hypermedia and Hypertext?
Differentiate between Hypermedia and Hypertext. 10 Marks
- Q.5 (a) Discuss different types of Multimedia Structures? How they are organized? 10 Marks
- (b) Explain briefly the Image File formats. 10 Marks
- Q.6 (a) Explain the process of making multimedia. 10 Marks
- (b) Explain various MPEG standards in detail. 10 Marks
- Q.7 Write the short notes on any four of the following 20 Marks
- (1) Hot Spots, Hyperlinks and Buttons
 - (2) Animation File Formats
 - (3) Entropy Encoding Run length
 - (4) ~~MIDI vs Digital Audio~~
 - (5) Prototype development.