

Con. 2282-09.

MCA - SEM - IV
 Elective - I: Customer Relationship
 (REVISED COURSE) Management
 (3 Hours)

30th May 2009
 BB-9519

[Total Marks : 100

- N.B.:** 1) question No.1 is compulsory
 2) attempt **any four questions** out of remaining six questions
 3) answer to the questions should be **grouped and written** together
 4) **figures to the right indicate full marks** assigned to the question.

Q1.	(A) Explain the relationship between customer intelligence and customer relationship management	10
	(B) Discuss the advantages and disadvantages of CRM in general	10
Q2.	(A) What is ASP and what are the advantages and disadvantages of ASP ?	10
	(B) Discuss briefly the caveats of CRM implementation . Discuss Pre implementation, during the implementation and post implementation	10
Q3.	(A) Explain briefly Sales Force Automation and Data Synchronization process	10
	(B) What is Web Enabling Call Center. Give Examples	10
Q4.	(A) Defines G-SPOT as Goals, Strategies , Plans, Objectives and Tactics	10
	(B) In Kick-off meeting what is the role of a project manager, implementation leader and system engineers of the Vendor company	10
Q5.	(A) Explain emerging channel trends that impact CRM	10
	(B) Discuss different types of CRM technology in detail	10
Q6.	Write short note :- (A) Opt-in, Opt-out (B) eCRM (C) Solicited v/s Unsolicited mail (D) Interactive Voice Response	20
Q7.	You are appointed as chief marketing manager of the largest business house of India implementing EMA. Plan your 1) promotion activities 2) event management 3) loyalty & Retention	20

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MCA SEM-IV

28th May 2009

Con. 2278-09.

Advance Database Technique

BB-9510

(3 Hours)

[Total Marks : 100

- N.B. : (1) Question No. 1 is **compulsory**.
(2) Attempt any **four** from remaining **six**.

- Q.1 Compare and contrast the following:
- a) Distributed databases and Centralized Databases [5]
 - b) Semi joins and Bloom joins [5]
 - c) OLTP and OLAP [5]
 - d) Log based and Procedural based implementation of Capture. [5]
- Q.2 a) Discuss how the scanning, sorting and join operations can be parallelized using data partitioned technique. [10]
- b) What do the term multilevel table and polyinstantiation mean? Explain their relationship. [10]
- Q.3 a) Explain the relationship of datawarehouse with ERP & CRM. [10]
- b) Explain the development phases of Dimensional modeling. [10]
- Q.4 a) Explain the various functions of OLAP with examples. [10]
- b) Explain the characteristics and architecture of search engines. [10]
- Q.5 a) Explain neural Networks and decision trees. [10]
- b) What are the challenges in implementing ORDBMS? Explain with examples. [10]
- Q.6 a) What is 3 – Phase Commit? Explain how it is different from 2 – Phase Commit? [10]
- b) Explain the following:
- i) Pointer Swizzling [5]
 - ii) Method Caching [5]
- Q.7 a) Explain performance – improving techniques of Data warehouse. [10]
- b) i) Explain data mining applications. [5]
- ii) Explain Type- Hierarchy and Inheritance in OODBMS. [5]

V-Ex-I-09-E-Scan-13

MCA SEM-IV
Software Project Management

19th May 2009

Con. 2475-09.

BB-9498

(3 Hours)

[Total Marks : 100

- N.B. :** (1) Question No. 1 is **compulsory**.
(2) Attempt any **four** from the remaining **six** questions.
(3) Assumptions made should be **clearly** stated.

1. (a) How does network diagram help in project scheduling and resource allocation ? **10**
What is critical path and how does it help you to expedite your project ?
(b) What is outsourcing ? List 5 reasons why organizations outsource. **10**
2. (a) What do you mean by a systems view of a project ? What is the three sphere model for Systems Management ? **10**
(b) What role does a project manager play in an information technology project ? What is the skill set required for a good project manager ? **10**
3. (a) What do you mean by Project Metrics ? Give example of any one project metrics to measure cost and schedule. **10**
(b) What are the components of Project Procurement management ? **10**
4. (a) "Project can be an organizational failure even if it is a technical success." Why ? What steps can taken to prevent this ? **10**
(b) What are the different approaches to do Risk Analysis and Assessment ? Compare and contrast. **10**
5. (a) What are the different organizational structures ? Discuss briefly. **10**
(b) What are the different types of contracts ? **10**
6. (a) What role does leadership play in project management ? What are the different approaches to leadership ? **10**
(b) What are the steps taken for Project Closure ? **10**
7. Write short notes on :— **20**
 - (a) Project Communication Plan
 - (b) Project Management Framework
 - (c) Emotional Intelligence
 - (d) Polarity Mapping.

MCA SEM - IV
Network Security
(REVISED COURSE)

23rd May 2009

Con. 2271-09.

BB-9504

(3 Hours)

[Total Marks : 100

- N.B :-
- 1) Question No 1 is **compulsory**
 - 2) Attempt **any four** form the **remaining**
 - 3) Figures to right indicate full marks
 - 4) Illustrate answers with sketches wherever necessary
 - 5) Answers to sub questions should be answered together.

- Q1 (a) What is a Message Digest? How is a message digest calculated using the MD5 algorithm 10
- (b) What is the man in the middle attack? Alice and Bob establish a secret key using Diffie-Hellman key exchange using $g=7$; $n = 13$. Alice takes x as 3 and bob takes y as 9. Tom an intruder selects x as 8 and y as 6. Show the working of the man in the middle attack 10
- Q2 (a) Discuss the SET process used in an e-Commerce transaction 10
- (b) Why do you require multiple domains? How does a KDC work in multiple domains? 10
- Q3 (a) Perform encryption and decryption using RSA for the following $P = 3$; $q = 11$; $e = 7$; $m = 5$ 10
- (b) What are the advantages and disadvantages of symmetric and asymmetric algorithms? Discuss how the advantages of both the techniques can be combined to ensure secure key exchange 10
- Q4 (a) Discuss the Security provided at the IP layer in the TCP/IP protocol suite. 10
- (b) Explain the different types of attacks a communication system is vulnerable to. 10
- Q5 (a) What is a digital certificate? How is a digital certificate issue and by whom 10
- (b) Explain Kerberos V 5 10
- Q6 (a) What are the pitfalls in mutual authentication? Explain the reflection attack and how is it handled. 10
- (b) Explain the symmetric key encryption algorithm IDEA 10
- Q7 Write notes on **any four** of the following :- 20
1. Packet Sniffing
 2. Virus
 3. Security Policy
 4. Firewalls
 5. Cross Certification
 6. SSL

MCA SEM-IV

664 : G-m.

(OLD)

26th May 2009

Con. 2480-09.

Object Oriented Modeling & Design
Using UML
(3 Hours)

BB-1074

[Total Marks : 100

- N.B.** (1) Question No. 1 is **compulsory**.
(2) Attempt any **four** from the remaining **six** questions.
(3) **List** all the assumptions **properly**.
1. (a) Draw a class diagram to describe undirected graphs. An undirected graph consists of a set of edges and a set of vertices. Edges connect pair of vertices. 8
(b) What do you mean by the following and how do you depict them in class diagrams : 12
 - (i) Actor classes
 - (ii) Abstract Classes
 - (iii) Constraints
 - (iv) Stereotypes.
 2. (a) What are the benefits of Object Oriented Methodology? 8
(b) What are Activity Diagrams ? Explain with help of an example. How do you depict the following in activity diagrams :— 12
 - (i) Parallel Activities
 - (ii) Design Refinement.
 3. (a) What are the different Interaction Diagrams ? What is the difference in the information conveyed by both of them ? Explain with an example. 10
(b) What do you understand by cohesion and coupling ? What role do they play in making class diagrams more flexible ? 10
 4. (a) What are the three approaches to identify classes ? Discuss advantages and disadvantages of each. 10
(b) A simple digital watch has a display and two buttons to set it, the A button and the B button. The watch has two modes of operation, display time and set time. In the display time mode, hours and minutes are displayed. The set time has two sub-modes, set hours and set minutes. The A button is used to select modes. Each time it is pressed, the mode advances in sequence : display, set hours, set minutes, display, etc. Within the sub-modes, the B button is used to advance the hours or minutes once each time it is pressed. Buttons must be released before they can generate another event. Prepare a state diagram of the watch. 10
 5. (a) Explain the following with respect to state transition diagram :— 10
 - (i) Event
 - (ii) State
 - (iii) Transition
 - (iv) Composite state
 - (v) Parallel states.
(b) Explain the bottom-up approach to develop dynamic diagrams. 10
 6. (a) What is object synchronization ? Explain. 8
(b) Explain reuse of Framework with respect to white box framework and black box framework. 12
 7. (a) Describe architectural patterns and design patterns. 12
(b) Explain what are Extension Mechanisms used in UML. 8

MCA SEM-IV

Object Oriented Modeling & Design

26th May 2009

814 : G-m.

using UML

Con. 2275-09.

(REVISED COURSE)

BB-9507

(3 Hours)

[Total Marks : 100

- N.B.** (1) Question No. 1 is compulsory.
 (2) Attempt any four from the remaining six questions.

1. (a) A hire company owns many heavy machines (such as diggers, cranes, fork-lift trucks). Periodically the company buys new stock or sends old machines to the scrap yard. The machines are available for hire. Customers who wish to hire these machines may book them, and they don't have to pay anything in advance. When they arrive to hire the machine, they must pay in advance for the required number of days. A customer who returns a machine late must pay a fee for the extra days. When a machine is returned, it is sent to the garage for a very quick immediate inspection while the customer settles any outstanding fees. After each return, the machine is repaired if necessary, and serviced. Machines that cannot be economically repaired are scrapped. 10
- (b) Draw an activity diagram for the Return use case, ideally including swimlanes. A few more details are given below :-
 When a machine is returned, it is sent immediately for a very quick inspection. If any problems are found, the customer is issued with a written warning that they may be sent further repair bills. Whilst the inspection is proceeding, the administrative staff are processing the return documents with the customer, who, if they returned the vehicle late, must pay the fee for the extra days. When the inspection is complete and, if necessary, the customer has been given a warning and settled any outstanding payments, the customer and the administrator sign the return document and the customer can leave. After the inspection, the machine is kept in the garage for service and any required repairs. 10
2. (a) What are the benefits of reuse ? What the various forms of reuse in object oriented development ? Explain. 10
- (b) List and explain various flexible guidelines for making class diagram. 10
3. (a) Explain sequence diagram using an example. Explain the notation to be used to represent iterations, conditional messaging, object creation and destruction and parallel processing. 10
- (b) Explain logical architecture and hardware architecture model. 10
4. (a) Explain bottom up approach for software system design with suitable example. 10
- (b) Explain the Abstraction approach for determining the classes. 10
5. (a) Differentiate between (any two) :- 10
 - (i) Aggregation and Composition
 - (ii) Activity Diagram and State Transition Diagram
 - (iii) Architectural Pattern and Design Pattern.
- (b) Draw sequence diagram to deposit money in the bank. 10
6. (a) Explain Booch Methodology for object oriented development. 10
- (b) Create state chart diagram for dialing a telephone number. 10
7. Write short notes on following (any four) :- 20
 - (a) Swimlanes
 - (b) Scenario
 - (c) Framework
 - (d) Stereotypes
 - (e) «extend» .

MCA SEM-IV
Java Programming

21st May 2009

Con. 2477-09.

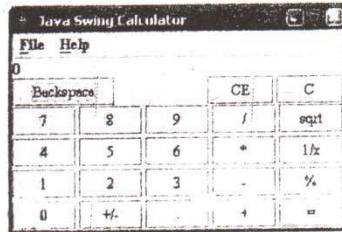
BB-9502

(3 Hours)

[Total Marks : 100

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

1. (a) (i) State the difference between Java application and Applet. 5
(ii) State the difference between AWT and Swing components. 5
(b) Write a Java program that enables the user to enter the **base** and **exponent** from keyboard. In that write recursive method power (**base, exponent**) that when invoked returns **base^{exponent}**. For example, **power (3,4) = 3 * 3 * 3 * 3**. Assume that exponent is an integer greater than or equal to 1. (Hint : The recursion step would use the relationship **base^{exponent} = base * base^{exponent-1}** and terminating condition will occurs when exponent is equal to 1.) 10
2. (a) Write code to display following GUI with appropriate swing components. 10



- (b) Explain the role of Classes, Interfaces and Packages in java. 10
3. (a) Explain the class exception and exception hierarchy. 10
(b) Write a program to find the sum of the series — 10
 $1 + x + x^2 + x^3 + \dots$
4. (a) Explain the ResultSet Types and ResultSet Constants in brief. 10
(b) State the five Layouts in Layout Manager for Java AWT. Show the layouts displayed by each of these Layout. 10
5. (a) What is JDK ? What is the use of JDK ? Explain its various tools. 10
(b) Explain in brief the different stages of an Applet Life Cycle and explain along with example how to pass parameters embedded in HTML. 10
6. (a) Distinguish between — 10
(i) InputStream and Reader classes
(ii) OutputStream and Writer classes.
(b) Write a program to explain the multithreading with the use of multiplication tables. Three threads must be defined. Each one must create one multiplication table; they are 5 table, 7 table, 13 table. 10
7. Write short notes on any four of the following :— 20
(a) Byte streams and Unicode character stream
(b) Object Serialization and Deserialization
(c) This and Super
(d) Java and C++
(e) Establishing database connectivity using Java.

MCA SEM-IV

Elective I: Embedded Systems

30th May 2009

VT-Mar-09-24(i)

Con. 2322-09.

(REVISED COURSE)

BB-9513

(3 Hours)

[Total Marks : 100

- N.B. :** (1) Question Nos. 1 is compulsory.
(2) Attempt five questions.
(3) All questions carry equal marks.

- Q1. a) Give architectural details of any ONE of following family of microcomputers: 8051, 6811, 80188 or ARM 7. (5)
b) Give the memory addressing and segmentation scheme used in 80188 microcomputer. (5)
c) How do you debug programs in an embedded system? Explain briefly the terms remote debugger, debug monitor, cross-compiler. (5)
d) What are different types of memories used in an embedded system? Give the memory map of a typical 80188 development board. (5)
- Q2. a) Write a program or pseudo-code to generate 16-bit CRC for a block of data in the memory. (10)
b) Write a simple diagnostic program to blink red LED when an error occurs in a 80188 (or ARM 7) based development board. (10)
- Q3. a) What is a hard real time OS and soft real time OS? Give examples of hard and soft types of real time applications. (10)
b) Describe the architecture of Win CE OR Embedded Linux OS. (10)
- Q4. a) Describe a timer driver and how multiple software timers are possible. (10)
b) What is interrupt latency? Describe an ISR and its critical section. (10)
- Q5. a) What is a Board Support Package (BSP)? Give examples of the BSP in any one of the OS (Win CE, ADEOS, or Embedded Linux). (10)
b) What is the difference between embedded systems programming and normal programming? (10)
- Q6. a) Describe the scheduler in a pre-emptive operating system. Give the scheduling points. (10)
b) What is a priority inversion? How can it be prevented? (10)
- Q7. Write short notes on any TWO of the following :
a) UART
b) Symbian OS
c) JTAG
d) Event Driven Programming

V-EX-I-09-D-Scan-95

MCA SEM-IV
(REV)

30th May 2009

Con. 2485-09.

Elective I: E-Business

BB-9525

(3 Hours)

[Total Marks : 100

N.B. : (1) Question No. 1 is **compulsory**.

(2) Attempt any **four** questions out of remaining **six**.

1. "The company (comptraders.com) markets computer consumables such as CDs, Stationery, printer ribbons, cartridges etc. It has a customer base of over 450 direct customers plus 210 retailers. The marketing manager has a team of six marketing executives. Customer orders are processed and forwarded to company's warehouse for execution. Warehousing officers prepares delivery Challan cum invoice and dispatches the material. Invoices prepared are entered into the financial accounting system." **Identify the transaction that can take place between the trading partners and implemented using EDI. Also, suggest some communications that would not be suitable for this technology.** 20
2. Answer Briefly :— 20
 - (a) By giving appropriate examples explain the term E-business and describe different E-business models.
 - (b) Write notes on :
 - (i) Viruses
 - (ii) Insurance coverage options.
3. Write short notes on :— 20
 - (a) Value Chain
 - (b) Payment Gateways
 - (c) The RSA Algorithm
 - (d) Secure Socket Layer.
4. Explain the following in about **10-12** sentences **each** :— 20
 - (a) Difference between Traditional and Electronic Payment System
 - (b) Importance of risk management and problems associated with it.
5. Answer the following in about **10-12** sentences **each** :— 20
 - (a) What do you mean by e-advertising ? How do we measure the effectiveness of e-advertising ?
 - (b) Explain the contribution of search engine in E-business web-site designing.
6. Describe the elements of E-business plan in detail. What are the various legal forms of the organisation ? 20
7. Write short notes on :— 20
 - (a) Copyrights and Trade Marks
 - (b) Benchmarking the Web Site
 - (c) Venture Capital Investors
 - (d) E-mail Marketing.

ws April 09 147

MCA SEM-IV
Elective -I : Artificial Intelligence
(REVISED COURSE)

30 May 2009

Con. 2281-09.

BB-9522

(3 Hours)

[Total Marks : 100

- N.B. :** (1) Question No. 1 is **compulsory**.
(2) Attempt any **four** from remaining **six**

- Q.1 Compare and contrast the following: (Any 2)
- i) Forward Vs. Backward Reasoning [10]
 - ii) Symbol Vs. Numbers [10]
 - iii) Problem Trees Vs Problem Graphs [10]
 - iv) Rules Vs Principles [10]
- Q.2 i) What is Artificial Intelligence? Explain the different models of Intelligence? [10]
- ii) What are production systems? Explain production system characteristics. [10]
- Q.3 i) Explain A* and Hill climbing algorithm. [10]
- ii) Explain Resolution in predicate logic. [10]
- Q.4 i) Explain k-armed Bandit Problem. [10]
- ii) How you will generate fuzzy rules with product space clustering? [10]
- Q.5 i) What is Natural Language Processing? How you will generate language from machine? [10]
- ii) Explain the concept of is-a hierarchy with an example. [10]
- Q.6 i) Explain the concept of crossover and mutation over schemata. [10]
- ii) Consider the following sentences into the predicate form: [10]
- a) Anyone sane does not teach an AI course.
 - b) John is an AI instructor.
 - c) Anything not male is a female.
 - d) Everyone in this world makes his own history.
 - e) If you push anything hard enough it will fall over.
- Q.7 i) Explain Bayesian Network. [10]
- ii) Explain Knowledge Data Discovery Process in detail. [10]
-

683 : G-m.

MCA SEM-IV

(OLD)

Introduction to Java and web Technology **BB-1068**

Con. 2532-09.

(3 Hours)

[Total Marks : 100

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

1. (a) State the difference between Java application and Applet. Explain in brief the different stages of an Applet Life Cycle. **10**
 (b) Write a Java program that enables the user to enter the **base** and **exponent** from keyboard. In that write recursive method **power (base, exponent)** that when invoked returns **base^{exponent}**. For example, **power(3,4) = 3 * 3 * 3 * 3**. Assume that exponent is an integer greater than or equal to 1. (Hint : The recursion step would use the relationship :—
 $base^{exponent} = base \cdot base^{exponent-1}$
 and terminating condition will occurs when **exponent** is equal to 1.) **10**
2. (a) Write a HTML code to display following form :— **10**

- (b) Write a program by using **javascript** that reads five integers and determines and prints the largest and the smallest integers in the group. **10**
3. (a) Explain the class exception and exception hierarchy. **10**
 (b) Write a program to find the sum of the series :— **10**
 $1 + x + x^2 + x^3 + \dots$
4. (a) Describe Java program steps in order to get connectivity to database along with example. **10**
 (b) State the five Layouts in Layout Manager for Java AWT. Show the layouts displayed by each of these Layout. **10**
5. (a) What is JDK ? What is the use of JDK ? Explain its various tools. **10**
 (b) Explain the role of Classes, Interfaces and Packages in java. **10**
6. (a) Distinguish between — **10**
 (i) InputStream and Reader classes
 (ii) OutputStream and Writer classes.
 (b) Write a program —
 (i) To illustrate thread sleep. Create and run a thread. Then make it sleep. **5**
 (ii) To explain thread suspension and resumption. **5**
7. Write short notes on any four of the following :— **20**
 (a) Servlets (d) JavaBeans.
 (b) Aplets (e) CORBA.
 (c) XML (f) Scriptlets(ASP,JSP).