



MET

INSTITUTE OF COMPUTER SCIENCE

UNIVERSITY QUESTION PAPERS (ICS)

RE-EXAM PAPER NOV-2011

SEM-IV

SR.NO	SUBJECT	REMARK
1	JAVA PROGRAMMING	✓
2	OBJECT ORIENTED MODELING AND DESIGN USING UML	✓
3	NETWORK SECURITY	✓
4	ADVANCE DATABASE TECHNIQUES	✓
5	<u>ELECTIVE - I</u>	
*	CUSTOMER RELATIONSHIP	✓
*	EMBEDDED SYSTEM	
*	E-BUSINESS	
*	GEOGRPHIC INFORMATION	
*	ARTIFICIAL INTELLIGENCE	
6	SOFTWARE PROJECT MANAGEMENT	✓

FOR REFERENCE USE ONLY



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

- Q 1. (a) Explain the difference between 10
 i) Interfaces and Abstract classes
 ii) Method Overloading and Method Overriding
 (b) Java is Platform independent and Machine Independent - 10
 Justify.
- Q 2. (a) Explain the Difference Between an Application and Applet? 10
 Add a note on Applet life cycle.
 (b) Design a Class Employee and calculate gross salary of 10
 employee
- Q 3. (a) What is Multithreading? Explain Thread Life cycle in detail. 10
 (b) Write a java program to print the count of vowels, consonants 10
 and numbers in a given file.
- Q 4. (a) Explain the concepts of OOP. 10
 (b) Explain any Five swing components in Java . 10
- Q 5. (a) What is Constructor? Explain Parameterized constructor and 10
 Constructor Overloading.
 (b) Explain use of Static Variables and methods in Java. 10
- Q 6. (a) Explain the Different ways in which driver can be loaded in a 10
 JDBC application with an example of each method.
 (b) What is Exception? Explain the steps to create your own 10
 exception with a suitable example.
- Q 7. Write notes on : 20
 (a) Drivers in JDBC
 (b) Data types
 (c) Abstract Classes
 (d) Packages

Con. 5755-11.

(REVISED COURSE)

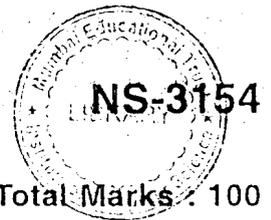
NS-3163

(3 Hours)

[Total Marks : 100]



- N.B. (1) Question 1 is compulsory.
(2) Attempt any four from remaining six.
(3) Assumption made should be clearly stated.
1. (a) Draw the sequence diagram to model "Withdrawal of cash Rs.25000 from the ATM", depicting one transaction is limited to withdraw Rs. 20000. 10
(b) A simple digital watch has a display and 2 buttons to set it, the A button and the B button. The watch has 2 modes of operations, display time and set time. In the display time mode, hours and minutes are displayed. The set time has 2 sub modes set hours and set minutes. The A button is used to select modes. Each time it is pressed, the mode advance in sequence, display, set hours, set minutes 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 other event. Prepare a state transition diagram of watch. 10
2. (a) Explain Booch methodology for Object Oriented Development. 10
(b) What are the flexibility guidelines for behavioral design? 10
3. (a) Explain top down approach for software system design. 10
(b) What is Extension mechanism? Why is it used? 10
4. (a) Explain the following terms: 10
(i) Reflexive association
(ii) Association class
(iii) Composition
(iv) Actor class
(b) Explain logical architecture of the system. 10
5. (a) Explain the reuse of frameworks with respect to white box framework and black box framework. 10
(b) Draw the activity diagram for cancel ticket scenario of airline reservation system. 10
6. (a) Compare and contrast the approaches for developing class diagram. 10
(b) Differentiate between (any two) ; 10
(i) extends vs uses
(ii) functional modeling vs object modeling
(iii) sequence vs collaboration diagram.
7. Write short notes: 20
i) Functional views of UML
ii) Cohesion
iii) Qualified association
iv) Swimlane



- N.B. : 1. **Question No. 1 is compulsory**
 2. Attempt **any Four** from 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.

- Q.1.[A] What is a KDC? How is it different from the CA? How does a KDC work with multiple domains? 10
- [B] What is 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-middle attack. 10
- Q.2. [A] Discuss the SET process used in E-Commerce transaction. 10
- [B] What are the key principles of security? Differentiate between Active attacks and Passive attack. 10
- Q.3. [A] Compare and contrast message digest algorithms MD4, MD5 and SHA. 10
- [B] Explain RSA asymmetric cryptographic algorithm with the help of numerical example. 10
- Q.4.[A] What is Mutual Authentication? A version of this protocol has a security pitfall known as the Reflection Attack. What is Reflection Attack? Suggest one method of fixing this. 10
- [B] What is Firewall? Explain different types of Firewalls. 10
- Q.5. [A] What are different modes of algorithm? Explain. 10
- [B] Explain in detail E-mail security. 10
- Q.6. [A] Explain broad-level steps in DES. What is a DES round? 10
- [B] What is Kerberos? How is Kerberos V5 different from V4. 10
- Q.7. Write short notes on **Any Four** of the following:- 20
1. IDEA
 2. Biometrics
 3. Vernam Cipher (One-Time pad)
 4. Certificate Revocation
 5. SSL
 6. Digital Signature

Date = 09/12/2011

Sub - Advance Database Techniques

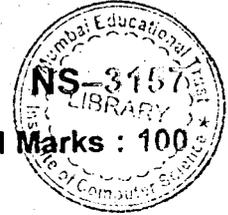
MCA (Sem - IV) Nov - 11

Con. 5757-11.

(REVISED COURSE)

(3 Hours)

[Total Marks : 100



- N.B. 1. Question 1 is compulsory
2. Answer any four from remaining six questions
3. All questions carry equal marks

- Q1. a) Compare and contrast the following (any three): 12
i) ROLAP and MOLAP
ii) Two phase and three phase commit
iii) Log-based and procedural approach to implementing capture
iv) Client-server and collaborating server architecture
b) Discuss the phases of Data Mining process. What is Association rule mining? 8
- Q2. a) Describe a timestamp based concurrency control in distributed DBMS. 10
What are two main schemes of avoiding deadlocks?
b) i) Explain how knowledge is represented in Neural networks. 5
ii) Give definitions for the following terms: Fragmentation, replication, concurrency, pipelining, security. 5
- Q3. a) What are parallel databases? Explain various architectures for parallel databases. Which architecture is preferred and why? 10
b) Common OLAP operations have received special names : roll-up , drill-down, slicing and dicing . Describe each of these operations and illustrate them using examples. 10
- Q4. a) Compare and contrast OODBMS and ORDBMS 10
b) Explain K-means clustering algorithm. 10
- Q5. a) What is authorization graph? Explain SQL's GRANT and REVOKE commands and their effect on the this graph. 10
b) Explain Bell-LaPedula Model. What type of security is implemented by it? 10
- Q6. a) What do you understand by Multilevel table and Polyinstantiation ? Explain their relationship. 10
b) What are components of Decision tree? How are decision trees constructed? 10
- Q7. Write short notes on any four of the following: 20
i) Metadata
ii) Search Engines
iii) Semijoin and bloomjoin techniques
iv) Data Mart
v) RSA algorithm
vi) Distributed catalog management

Con. 6396 & (a) to (c)-11.

(REVISED COURSE)

NS-3169 to 3172

(3 Hours)

[Total Marks : 100



- N.B. :** (1) Question No. 1 is **compulsory**.
 (2) Answer any **five** questions.
 (3) **All** questions carry **equal** marks.

1. (a) Give the architecture details of any one of the following family of microcomputers: 8051, 6811, ARM 7 or ARM 9. 5
 (b) Explain in brief SDK components. 5
 (c) Explain briefly the term remote debugger, debug monitor, cross compiler. 5
 (d) Give the different types of memory used in an embedded system. 5
2. (a) Write a simple diagnostic program to blink red LED when an error occurs in a 80188(or ARM 7) based development board. 10
 (b) Write a program or pseudo code to generate 16 bit CRC data in memory block. 10
3. (a) Describe the architecture of Win CE OR .NET CF OR Embedded XP. 10
 (b) What are the methods of debugging embedded system application from a remote host? What are the limitations of testing on a software emulator? 10
4. (a) What software is included in a Board Support Package (BSP). Give the example of the BSP in any one of the OS (Win CE6, ADEOS). 10
 (b) Describe how timer interrupt is handled in an embedded system. How can you get the number of software timers from one hardware timer. 10
5. (a) How does a startup routine prepare the board for running a program? In 80188, which segmentation registers will be initialized? 10
 (b) Give the features included in a micro kernel and monolithic kernel. What are the advantages of each and where they are used. 10
6. (a) Describe the scheduler in an embedded system like ADEOS. Give the scheduling point. 10
 (b) What is priority inversion? How can it be prevented? 10
7. Write a short note on any Two of the following: 20
 (a) SPI & I2C
 (b) UART
 (c) JTAG
 (d) Timer Driver.

[TURN OVER

Sem - III
 Subj. - C.R.M.
 Date - 12/12/2011
 2

Con. 6396(a)-11.

NS-3170

(3 Hours)

[Total Marks : 100

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

- Q1. Answer the following :**
- (a) Explain G-SPOT of CRM. Give difference between CRM and e-CRM. [10]
 (b) What is Customer Life Cycle? What is CLV? Explain Onyx View of business for CRM. [10]
- Q.2.** (a) Explain opportunity management. What is lead management. [10]
 (b) What are the components of EMA? Explain them in brief. [10]
- Q.3.** (a) Explain the role of ASP? What are the advantages and disadvantages of implementing ASP? [10]
 (b) In EMA what are promotions and events? [10]
- Q4.** (a) What are the Caveats of CRM Implementation? Discuss pre-implementation, and Rollout and System Hand off. [10]
 (b) What is the role of Project Manager, Implementation leader and System Engineer in a kickoff meeting? [10]
- Q5.** (a) Which are the concepts, which should be considered when, Web Enabling a call center? [10]
 (b) What is IVR? What is inbound IVR and outbound IVR? [10]
- Q6.** (a) What do you understand by pipeline management? [10]
 (b) What is Campaign Management? Give the flow diagram of a Campaign which is created by marketing automation tool [10]
- Q7.** Write short note on (any four): [20]
 (a) Power User Beta test
 (b) ACD, CTI and IVR
 (c) Traditional distribution channel support Customer relationship
 (d) emerging trends that impact CRM
 (e) e-Marketing and closed loop feedback
 (f) Benefits of SFA and barriers to successful SFA.

◆◆◆◆◆◆◆◆

Con. 6396(b)-11.

3

NS-3171

(REVISED COURSE)

(3 Hours)

[Total Marks : 100

Instructions:

- o Q.1 is compulsory.
- o Attempt **any four** out of the remaining.
- o Figures to the right indicate marks.

- Q.1. A) What is Artificial Intelligence? Explain the different models of intelligence? 10
 B) Compare and contrast the following 10
 1) Scripts and frames
 2) Conceptual graph and conceptual representation
- Q.2. A) Explain resolution in predicate logic. 10
 B) 1) Explain the various parsing techniques used in Natural Language Processing. 5
 2) How fuzzy logic is used in reasoning? 5
- Q.3. A) What is expert system? Explain its architecture. Create an expert system to infer whether a student has secured poor, good, average or excellent marks in his/her MCA exam. 10
 B) Write a short note on (any 2) 10
 1) Forward and backward chaining
 2) Non-deductive inference rules
 3) Methods to deal with uncertainties in knowledge systems
- Q.4. A) Explain in brief DFS and BFS. 10
 B) 1) Write a short note on "Nonmonotonic reasoning". 5
 2) Explain in brief A* algorithm. 5
- Q.5. A) Explain Bayesian network in brief. 10
 B) Explain characteristics of AI problem. Analyze "Travelling Salesman Problem" with respect to seven characteristics. 10
- Q.6. A) Explain k-arm bandit problem. 10
 B) Explain feed forward neural network and recurrent neural network. 10
- Q.7. A) Write a short note on (any two): 10
 1) Unification algorithm
 2) Machine translation
 3) Logic programming
 B) Explain different knowledge forms and knowledge representations. 10

[TURN OVER

Con. 6396(b)-11.

3

NS-3171

(REVISED COURSE)

(3 Hours)

[Total Marks : 100

Instructions:

- o Q.1 is compulsory.
- o Attempt **any four** out of the remaining.
- o Figures to the right indicate marks.

- Q.1. A) What is Artificial Intelligence? Explain the different models of intelligence? 10
 B) Compare and contrast the following 10
 1) Scripts and frames
 2) Conceptual graph and conceptual representation
- Q.2. A) Explain resolution in predicate logic. 10
 B) 1) Explain the various parsing techniques used in Natural Language Processing. 5
 2) How fuzzy logic is used in reasoning? 5
- Q.3. A) What is expert system? Explain its architecture. Create an expert system to infer whether a student has secured poor, good, average or excellent marks in his/her MCA exam. 10
 B) Write a short note on (any 2) 10
 1) Forward and backward chaining
 2) Non-deductive inference rules
 3) Methods to deal with uncertainties in knowledge systems
- Q.4. A) Explain in brief DFS and BFS. 10
 B) 1) Write a short note on "Nonmonotonic reasoning". 5
 2) Explain in brief A* algorithm. 5
- Q.5. A) Explain Bayesian network in brief. 10
 B) Explain characteristics of AI problem. Analyze "Travelling Salesman Problem" with respect to seven characteristics. 10
- Q.6. A) Explain k-arm bandit problem. 10
 B) Explain feed forward neural network and recurrent neural network. 10
- Q.7. A) Write a short note on (any two): 10
 1) Unification algorithm
 2) Machine translation
 3) Logic programming
 B) Explain different knowledge forms and knowledge representations. 10

[TURN OVER

Con. 6396(c)-11.

4

NS-3172

(3 Hours)

[Total Marks : 100

- N.B.** (1) Question No. 1 is **compulsory**.
 (2) Attempt any **four** from the remaining **six** questions.
 (3) Illustrate answers with neat sketches wherever required.
 (4) Answers to questions should be **grouped** and written **together**.

Q. 1. What is EDI? Explain the need for EDI.

Consider the following scenario,

“Consider a Flight booking system where online booking of tickets can be done immediately and printed. Client connects to a flight server for Signing into the reservation system. This in turn accesses another server for authorization and issue of tickets. This server in turn uses services of two or more servers. “

Explain the practical issues involved in implementing this.

How can the system be automated and controlled?

Clearly sketch the computing infrastructure required for implementing this scenario. 20

- Q.2. (a) Define E-Business and E-Commerce. Discuss the distinguishing factors between E-Business and E-Commerce. 10
- (b) Discuss various E-Business models with appropriate illustrations. 10
- Q.3. (a) What do you mean by Entrepreneurial Process? Explain with the help of process diagram. 10
- (b) Discuss about Electronic Payment System? Explain various Electronic Payment Methods in detail. 10
- Q.4. (a) Enumerate the Internet Security Holes. Explain the security issues involved in e-business environment. How can cryptography and digital signature solve the issues? 15
- (b) What are the Functionalities of Electronic checks? 05
- Q.5. (a) Explain the elements of E-Business Plan in detail. What are the various legal issues involved in E-Business? 10
- (b) Explain in detail about ERP and CRM systems. 10
- Q.6. (a) Explain various ways of E-Business advertising? 10
- (b) What is Computer Ethics? Discuss the nature of Computer Ethics in detail. 10
- Q.7. Write the short notes on any four : 20
- (a) SSL
- (b) E-Business Value Chains
- (c) ISP
- (d) Log file analysis
- (e) Electronic Industrial Espionage

MCA-SEM-IV-NOV-2011.
 Sub: Software-Project-Management
 DATE: 28/11/2011.

(3 Hours)

[Total Marks : 100



- N. B. : (1) Question No. 1 is **compulsory**.
 (2) Attempt any **four** questions out of **remaining**.

Q.1	A	What is Project management framework? Explain with suitable diagram	10
	B	Explain the concept of make-or- buy decision process using decision tree. Also give its advantages and disadvantages	10
Q.2.	A	What is project procurement management? Explain different processes involved in it.	10
	B	What do you mean by systems view of project? Explain three sphere model for systems management?	10
Q.3	A	Explain different phases in Project life cycle with suitable diagram	10
	B	What are different types of contracts? Explain in detail	10
Q.4	A	What are different steps involved in project risk management? Explain.	10
	B	What is leadership in project management ? explain different approaches to leadership.	10
Q.5	A	Explain importance of performance reporting. Also give different ways of performance reporting	10
	B	Explain schedule development tools : Gantt charts , CPM, PERT, Critical chain scheduling With suitable examples	10
Q.6	A	What are different organizational structures? Explain with suitable diagram.	10
	B	Explain four frames of organizations. Also comment on importance of project communication management.	10
Q.7		Write short notes on (any four)	20
	A	Importance of ethics in a project.	
	B	administrative closure	
	C	Stakeholders management	
	D	Role of project manager in an IT project	
	E	change process	