

NALANDA OPEN UNIVERSITY
Master of Computer Application
PART-II, PAPER-XII
(Object Oriented Analysis and Design)
Annual Examination, 2013

Time : 3 Hours.

Full Marks : 80

Answer any Five Questions. All questions carry equal marks.

1. What are the benefits of object oriented development over structure development. How one way association is different than two way association.
2. Explain the use of :—
 - (a) Class diagram.
 - (b) Instance diagram.
 - (c) Use case diagram.
 - (d) Sequence diagram.
3. Create an activity diagram for railway reservation system. Explain all the components of the activity diagram.
4. Differentiate between the following :—
 - (a) Static binding and dynamic binding
 - (b) Generalization and aggregation
 - (c) Attributes and behaviour
 - (d) Dynamic model and functional model
5. Write short notes on :—
 - (a) Meta classes
 - (b) Association class
 - (c) Object constraint language
 - (d) Derived attributes
6. Why do we use integrity constraints in relational Database Management System. Justify your answer with appropriate example.
7. What is state diagram ? Draw the state diagram for Library Information System.
8. Explain how DFD are designed in an object oriented approach. Discuss it with teaching learning system. Explain probe in sequential diagram.
9. Explain major features of UML. What is inheritance ? How we can incorporate inheritance adjustment in object oriented methodology ?
10. Briefly explain the concept of collaboration with a diagram.

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NALANDA OPEN UNIVERSITY
Master of Computer Application
PART-II, PAPER-XIII
(Software Engineering)
Annual Examination, 2013

Time : 3 Hours.

Full Marks : 80

Answer any Five Questions. All questions carry equal marks.

1. What are process models? Why are they important? Explain SPIRAL model with a proper diagram.
2. What is a Risk? Briefly discuss about the Risk Management.
3. Explain the following with example :—
 - (a) Version control
 - (b) Change control
4. What is a CASE TOOL? When and where they can be used? What are the categories of CASE TOOLS? Explain.
5. Explain the concept of measurement and metrics in software engineering. What are different types of process metrics?
6. Discuss the need of Software Requirement Specifications(SRS).
7. What are the rules for Human Computer Interface design? Explain in brief.
8. Explain in detail the COCOMO model.
9. Draw a 2-level DFD for Railway Reservation System. Make necessary assumption if required.
10. Write short notes on :—
 - (a) Prototyping
 - (b) Software Change Management
 - (c) Cleanroom approach.



NALANDA OPEN UNIVERSITY
Master of Computer Application
PART-II, PAPER-XIV
(Accounting and Financial Management)
Annual Examination, 2013

Time : 3 Hours.

Full Marks : 80

Answer any Five Questions. All questions carry equal marks.

1. Discuss the role of accountants in modern business organization.
2. Explain why accounting practices should be standardized. What progress has been made in India regarding the standardization of Accounting Practices ?
3. From the following Balance Sheets of M/s Gupta & Co., prepare the Cash Flow Statement for the year ended March 31, 2007.

| Liabilities | 2006 (Rs.) | 2007 (Rs.) | Assets | 2006 (Rs.) | 2007 (Rs.) |
|----------------------|-----------------|-----------------|------------------|-----------------|-----------------|
| Creditors | 20,000 | 22,000 | Cash | 8,000 | 22,000 |
| Outstanding Expenses | 5,000 | 1,000 | Debtors | 15,000 | 11,000 |
| Loan From X | 10,000 | 5,000 | Bills Receivable | 5,000 | — |
| Capital | 1,08,000 | 1,68,000 | Stock | 20,000 | 28,000 |
| | 1,43,000 | 1,96,000 | Fixed Assets | 95,000 | 1,35,000 |
| | | | | 1,43,000 | 1,96,000 |

During the year, the proprietor introduced Rs. 20,000 as additional capital. The net profits for the year, after charging Rs. 5,000 as depreciation on fixed assets, were Rs. 50,000.

4. Discuss the following generally accepted accounting principles in India.
 - (a) Business Entity Concept
 - (b) Disclosure Convention
5. What is Ratio Analysis ? Discuss its importance and limitations in business.
6. What do you understand by 'Financial Management' ? What is the relationship of finance function to production and marketing functions ?
7. "Merely increasing the working capital of the firm does not necessarily reduce the riskiness of the firm, rather the composition of current assets is equally important". Comment.
8. Explain in detail the role and functions of treasury management. How is excess liquidity harmful to the firm ?
9. What are credit policy variables ? Discuss the quantitative effect of relaxing credit standards on profit.
10. Write short notes on any **Three** of the following :—
 - (a) Stock-Out Cost
 - (b) Time Value of Money
 - (c) Need for holding the cash
 - (d) Importance of Ratio analysis
 - (e) Liberal Credit Policy

NALANDA OPEN UNIVERSITY
Master of Computer Application
PART-II, PAPER-XVI
(Data and File Structure)
Annual Examination, 2013

Time : 3 Hours.

Full Marks : 80

Answer any Five Questions. All questions carry equal marks.

1. What is Process of analysis of an algorithm? Explain it with a suitable example.
2. What are the pre conditions for applying binary search on any list containing Integer values ? Write the algorithm to run it on the following list of number :
10, 27, 23, 56, 38, 66, 45
What is worst case complexity of the above algorithm ?
3. Construct a binary tree using the following pre - order and in - order traversals :
Pre-order: ABGHMCDEF
In-order: BHMADFEC
4. Write an algorithm for multiplication of two sparse matrices.
5. Explain the shell sorting technique with an example. Give the complexity of above technique in terms of comparisons and storage required for both best and worst cases.
6. Write the functions to perform Push and Pop operations of stack using pointers. Using above functions, write an algorithm to convert an infix notation to its equivalent postfix notation.
7. Write an algorithm to find the frequency (occurrence of words) from a give text file. The list of words and their corresponding frequency should be in the alphabetical order of words.
8. Explain the different types of file organisations available with their advantages and disadvantage.
9. What is a List? Explain different types of Linked list with an example for each.
10. Write short notes on the following :—
 - (i) AVL tree
 - (ii) Circular Queue



NALANDA OPEN UNIVERSITY
Master of Computer Application
PART-II, PAPER-XVII
(Operating System Concepts and Networking Management)
Annual Examination, 2013

Time : 3 Hours.

Full Marks : 80

Answer any Five Questions. All questions carry equal marks.

1. Discuss the functionality of *User* and *Kernel* modes of Windows 2000 operating system.
2. Explain the process and thread management in LINUX o/s.
3. With the help of Architecture diagrams explain the Simple Network Management Protocol (SNMP) and User Datagram Protocol (UDP).
4. What is the use of Transmission media in Networking ? List and explain various guided and unguided transmission media with their advantages and disadvantages.
5. Explain the abstract model of Virtual memory in Linux o/s with the help of a address mapping diagram.
6. Explain how NTFS, FAT16 and FAT32 file systems are supported in Windows 2000 o/s.
7. Explain various User Authentication methods that the computer system uses.
8. Discuss Registry Management in WINDOWS. Write the purpose of VPN and name some VPN technologies supported by WINDOWS 2000.
9. Write the procedure to use the mapped drive in WINDOWS 2000 o/s. Explain the Backup and Restoration procedures in LINUX.
10. Write short notes on any **Two** of the following :—
 - (a) Kerberos management in WINDOWS 2000 o/s.
 - (b) Distributed o/s
 - (c) Trivial File Transfer Protocol (TFTP)
 - (d) Pipes and filter commands in LINUX.



NALANDA OPEN UNIVERSITY
Master of Computer Application
PART-II, PAPER-XVIII
(Introduction to Database Management System)
Annual Examination, 2013

Time : 3 Hours.

Full Marks : 80

Answer any Five Questions. All questions carry equal marks.

1. Explain the role of the following components of Database Management System.
 - (i) Transaction Manager
 - (ii) Query Processor
 - (iii) Storage Manager
2. Define primary key, candidate key, super key and foreign key. Decompose the relation **R = (A, B, C, D, E)** with the set of functional dependencies :—
A → BC
CD → E
B → D into 3NF relation
3. Who is a Database Administrator? Describe the functions of a Database Administrator.
4. Justify the following statements with proper examples :—
 - (i) Two phase locking leads to serializability schedules.
 - (ii) A Relation in BCNF is also in 3NF.
5. What is a transaction? Discuss the problems associated with concurrent transactions with a suitable example.
6. Write down the advantages and disadvantages of distributed DBMS.
7. Explain the purpose of check points in database recovery. What is log based recovery in Database systems.
8. Why is a B tree a better structure than a binary search tree for implementation of an index? Discuss the different states of a Transaction with the help of a diagram.
9. Discuss the measures that are used to provide security of data in databases. What is a fragment of a relation? What are the main types of fragments? Why is fragmentation used in distributed Database Design?
10. Explain the following terms :—
 - (i) Secondary Index
 - (ii) Data Dictionary
 - (iii) Division operation in Relational Algebra.



NALANDA OPEN UNIVERSITY
Master of Computer Application
PART-II, PAPER-XIX
(Object Oriented Technologies and Java Programming)
Annual Examination, 2013

Time : 3 Hours.

Full Marks : 80

Answer any Five Questions. All questions carry equal marks.

1. What is multi-threading ? Explain how does it help Java in its performance ? Differentiate between throw and throws ?
2. What is Inheritance and why it is important? Briefly explain importance of super keyword in Java ?
3. What are shift operators ? How many types of shift operators are available in Java ? Briefly explain benefits of stream classes.
4. Explain URL with an example. Explain how exception handling is done in Java with the help of an example.
5. What is a package in Java ? Explain how package is created in Java.
6. Distinguish between the following terms with examples :—
 - (i) Exception and Error
 - (ii) Method overloading and overriding
 - (iii) Instance variables and class variables.
7. What is constructor ? Explain constructor overloading in Java with an example.
8. What is the common usage of serialization? What is the result of compiling and running following program ?
9. What is URL ? Explain two constructor for URL, in Java.net package. Explain how you may connect to a URL in Java. Compare the different layout managers in brief.
10. What do you mean by an event ? Explain different components of an event. What are the different types of AWT components ? How are these components added to the container.

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NALANDA OPEN UNIVERSITY
Master of Computer Application
PART-II, PAPER-XI
(Internet Concepts and Web Design)
Annual Examination, 2013

Time : 3 Hours.

Full Marks : 100 (20+80)

Answer all the Questions (Write all the steps in your Copy).

1. Design a single page web site for a university containing a description of the courses offered. It should also contain some general information about the university such as its history, the campus, its unique features and so on. The site and it's each section should have a different color.
2. Make a brief bio-data of yours and code it as an HTML Page. You can use tables to show your academic history.
3. Write code in VB script to generate the Fibonacci series up to 20 terms.
4. What is HTML? Explain some basic Tags of HTML.

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NALANDA OPEN UNIVERSITY

Master of Computer Application

PART-II, PAPER-XV

(MCSL-036)

Annual Examination, 2013

Time : 3 Hours.

Full Marks : 100(20+80)

Answer any Two Sections.

SECTION - A

(Object Oriented Analysis and Design)

1. A social networking site needed to be developed. Only college/university students are allowed to be registered. Each user of the system should be able to send e-mail to anyone if he has agreed to become his friend. He can post his own photograph, his friend photograph and also send gifts electronically. There should be provision for saving, formatting e-mail as well as printing them. The system should also prompt the user there is an e-mail for him/her.

Perform the following tasks :—

- (a) Draw the use cases, define all the classes and draw an object diagram.
- (b) Draw the sequences and collaboration diagram.

SECTION - B

(Software Engineering)

2. Perform the following tasks for the problem defined in Section -. A.
 - (a) Develop SRS
 - (b) Draw DFDs of level 0 and level 1
 - (c) Draw an E - R diagram and its related tables with integrity constraints.

SECTION - C

(Accountancy and Financial Management)

3. Post the following transactions of a company to prepare the journal, ledger and trial balance.

| <i>April-2011</i> | <i>Transaction</i> | <i>Amount (Rs.)</i> |
|-------------------|--------------------------------|---------------------|
| 5 | Started the business with cash | 10,00,000 |
| 8 | Deposited in the bank | 2,45,000 |
| 12 | Items purchased for cash | 2,00,000 |
| 14 | Goods sold for cash | 1,00,000 |
| 19 | Good sold on credit | 90,000 |
| 22 | Received cash | 3,50,000 |
| 28 | Paid rent | 1,59,000 |
| 30 | Paid salary | 3,00,000 |

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NALANDA OPEN UNIVERSITY

Master of Computer Application

PART-II, PAPER-XX

MCSL-025 : Laboratory Course

(Data and File Structures, Networking, DBMS Lab and Java Programming)

Annual Examination, 2013

Time : 3 Hours.

Full Marks : 100(20+80)

Answer any Three Sections.

SECTION - A : Data and File Structures

1. Write a C Program which inserts an element in the front of a queue.
2. Write a C Program to create a binary tree.

SECTION - B : Networking

3. Write the use of each command :—
 - (a) pwd
 - (b) ls-l
 - (c) path
 - (d) ping
 - (e) tail.

SECTION - C : DBMS Lab

4. Create the following table and perform the necessary tasks defined below :—
 - (a) Create the following table named Student :—
 - Student Name
 - Roll No.
 - Department
 - Programme
 - Year_of_Registration
 - Date_of_Birth
 - (b) Enter at least 5 records in the above table and answer the following queries using SQL :—
 - (i) List all the students of age 18 years and above.
 - (ii) List all the students registered in a department in year 2009.
 - (iii) List all the students named 'Ravi in the table.
 - (iv) Find how many students are registered in MCA Programme ?

SECTION - D : Java Programming

5. Write a program in Java which takes a string as input and prints reverse of it.

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