

**VIKRAMA SIMHAPURI UNIVERSITY:: NELLORE**  
**DEPARTMENT OF COMPUTER SCIENCE**  
**MCA DEGREE EXAMINATIONS**  
**MCA I SEMESTER MODEL QUESTION PAPER**  
**PAPER 111: PROBLEM SOLVING AND COMPUTER PROGRAMMING**  
**(WITH EFFECT FROM ADMITTED CANDIDATES 2011-12)**

**Time: 3 Hrs**

**Max.Marks:70**

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**PART-A**

Answer any **Five** questions  
Each question carries equal marks 5X6M=30M

1. What is a Data type? Explain basic Data types in C++.
2. What is expression precedence? Explain.
3. Explain multi-way selection in C++?
4. Explain about various Logical and relational operators.
5. What is an Array? Explain.
6. What is a Pointer? What is the importance of a pointer?
7. What is a structure? Explain.
8. Write about type definition.
9. Write a short note in Strings in C++.
10. What is Exception specification?

**PART-B**

Answer any **Four** questions  
Each question carries equal marks 4X10M=40M

11. Explain briefly characteristics of OOPS language and mention advantages of OOPS approach over functional programming.
12. What are User defined functions in C++? Write a C++ program for finding the factorial of a given number using functions.
13. Explain about various Loop control statements in C++ with illustrative examples.
14. a) Explain various input and output streams in C++.  
b) What is Recursion? Give an Example.
15. a) Explain the concept of class and object with illustrative example.  
b) What is an inline function? Explain.
16. What is inheritance? What are its advantages? Explain any two types of inheritance with the help of an example.
17. Explain both Function templates and class templates in C++.
18. Explain exception handling mechanism in C++.

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**MCA I SEMESTER MODEL QUESTION PAPER**  
**PAPER 112: COMPUTER ORGANIZATION**  
**(WITH EFFECT FROM ADMITTED CANDIDATES 2011-12)**

**Time: 3 hrs**

**Max.Marks: 70**

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**PART-A**

Answer any **FIVE** questions  
Each Question carries equal Marks

5X6M=30M

1. Write a Short note on Floating Point Representation?
2. Explain Flip flops?
3. Differentiate between Gray code and BCD code?
4. Define Register? Explain Code segment Registers?
5. Explain Control Unit hard wired control?
6. Explain Memory mapped I/O?
7. Define DMA? Explain DMA control?
8. Explain Programmed I/O?
9. Explain Logical and Shift instructions in INTEL8086?
10. Explain Flag Transfer Mode?

**PART-B**

Answer any **FOUR** questions  
Each Question carries equal Marks

4X10M=40M

11. Define Boolean algebra? Explain Simplification of Boolean expressions?
12. Explain
  - a) Decoders and Encoders
  - b) Multiplexers
13. Briefly explain Memory Organization?
14. Explain INTEL-8086 CPU architecture?
15. Briefly explain Micro Programmed Control?
16. Explain Input-Output Organization?
17. Explain INTEL 8086 Assembly Language Instructions?
18. Explain INTEL 80286 Micro Processor?

VIKRAMA SIMHAPURI UNIVERSITY: NELLORE  
DEPARTMENT OF COMPUTER SCIENCE  
Paper: 113- Discrete Mathematical Structure  
I SEMESTER MODEL QUESTION PAPER  
(WITH EFFECT FROM ADMITTED CANDIDATES 2011-12)

Time: 3 Hours

Max.Marks:70

PART-A

Answer any five questions of the following

5 X 6M = 30M

1. Define set? And explain its operations with example
2. Differentiate between combinations and permutations
3. What is mean by recurrence and write its uses
4. Write a short note on Binomial coefficient
5. Write a short note on method of undetermined coefficients
6. Suppose that A is the 2X2 matrix  $\begin{pmatrix} 3 & -1 \\ 0 & 2 \end{pmatrix}$  for each integer  $n \geq 1$  find an expression for  $A^n$  using recurrence relation, In particular find  $A^{100}$ .
7. Explain about Big O notation
8. Define a). Path b). Closers c). Adjacent Matrix d). Graph e). Inverse Relation
9. Define Graphs? Explain with neat diagram
10. Write a short note on a). Isomorphism b). Sub graphs

PART-B

Answer any four question of the fallowing, each question carries equal marks

4X10M = 40M

11. Explain method of proof of an implication with example
12. State and prove general principle of inclusion – exclusion theorem
13. a) Write a short note on generating functions  
b) Find the coefficients of  $x^{20}$  in  $(x+x^2+x^3+x^4+x^5)(x^2+x^3+x^4+\dots)$ .
14. Find a solution to  $a_n - 5a_{n-1} + 6a_{n-2} = n(n-1)$  for  $n \geq 2$ .
15. What is mean by relation? Explain properties of binary relations.
16. What is mean by sorting and searching? Explain algorithm for interchange sort.
17. a) What is mean by tree? Explain its properties.  
b) Write a short note on spanning tree.
18. Explain Birth-First search and Depth –First search algorithm.

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**MCA DEGREE EXAMINATIONS**  
**MCA I SEMESTER MODEL QUESTION PAPER**  
**PAPER 114: DATA STRUCTURES**  
**(WITH EFFECT FROM ADMITTED CANDIDATES 2011-12)**

**Time: 3 Hrs**

**Max.Marks:70**

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**PART-A**

Answer any **Five** questions  
Each question carries equal marks                      5x 6M = 30 Marks

1. Distinguish between primitive and non primitive Data Structures.
2. What is an array? Explain.
3. What are the advantages of Doubly Linked List over Singly Linked List?
4. What are the various Stack operations?
5. What are the various Queue operations? Explain.
6. What is a Binary tree? What are various operations?
7. What is A Linear Search? Explain.
8. Write an algorithm for selection sort.
9. What is a Graph? Explain different types of Graphs.
10. What is a minimal spanning tree? Explain.

**PART-B**

Answer any **Four** questions  
Each question carries equal marks                      4x10M = 40 Marks

11. What is an ADT? Illustrate with an example.
12. Write an algorithm for the following operations on Singly Linked List
  - i) Creating the list
  - ii) Inserting an item at any position
  - iii) Deleting an item at any position
13. How to convert given infix expression into postfix expression? Write an algorithm?
14. What is a Dqueue? Write an algorithm for various Dqueue operations.
15. a) what are the various tree traversal methods? Explain.  
b) What is an AVL tree? Explain.
16. What is a Binary tree? Write an algorithm to convert general tree to Binary tree.
17. Explain Quick sort technique. Write an algorithm for it.
18. a) What is a Heap? Explain with an example.  
b) Explain various Graph traversal techniques

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**MCA DEGREE EXAMINATIONS**  
**MCA I SEMESTER MODEL QUESTION PAPER**  
**PAPER 115: ACCOUNTANCY AND FINANCIAL MANAGEMENT**  
**(WITH EFFECT FROM ADMITTED CANDIDATES FROM 2011-12)**

**Time: 3 Hrs**

**Max.Marks:70**

**PART-A**

Answer any **Five** questions  
Each question carries equal marks 5X6M=30M

1. Accounting Information System
2. Subsidiary Books used in the business
3. Financial statements and its utility to the various users
4. Distinction between Provision and Reserve
5. Types of Financial analysis
6. Ratio analysis and its significance.
7. Goals and Functions of Finance
8. Classification of costs
9. Break even analysis and its significance
10. Role of Cost Accounting in decision making of organisation.

**PART-B**

Answer any **Four** questions  
Each question carries equal marks 4X10M=40M

11. Define Accounting and its scope and principles.
12. Journalise the following transactions in the books of kapil:

2002		Rs.
June	1 started business with cash	45,000
"	1 paid into bank	25,000
"	2 goods purchased for cash	15,000
"	3 purchase of furniture and payment by cheque	5,000
"	5 sold goods for cash	8,500
"	8 sold goods to Arvid walia	4,000
"	10 goods purchased from amrit Lal	7,000
"	12 goods returned to amrit lal	1,000
"	15 goods returned by arvind walia	2,00
"	18 cash received from arvind walia Rs.3, 760 in settlement	
"	21 withdrew from bank for private use	1,000
"	Withdrew from bank for use in the business	5,000
"	25 paid telephone rent for one year	400
"	28 cash paid to amrit lal in full settlement of his account	
"		5,940
"	30 paid for : stationery	200
	Rent	1,000
	Salaries to staff	2,500

13. What are Financial Statements and Elucidate the need and importance of Financial statements.

14. From the following balance extracted from the books of M/s.Rajendra Kumar Gupta & co.  
Prepare a trading and profit and loss account and a balance sheet.

Particulars	Rs.	Particulars	Rs.
Opening stock	<b>1,250</b>	Plant&machinery	<b>6,230</b>
Sales	<b>11,800</b>	Returns outwards	<b>1,380</b>
Depreciation	<b>667</b>	Cash in hand	<b>895</b>
Commission(cr)	<b>211</b>	Salaries	<b>750</b>
Insurance	<b>380</b>	Debtors	<b>1,905</b>
Carriage inwards	<b>300</b>	Discount(Dr)	<b>328</b>
Furniture	<b>670</b>	Bills receivable	<b>2,730</b>
Printing charges	<b>481</b>	Wages	<b>1,589</b>
Carriage outwards	<b>200</b>	Returns inwards	<b>1,659</b>
Capital	<b>9,228</b>	Bank overdraft	<b>4,000</b>
Creditors	<b>1,780</b>	Purchases	<b>8,679</b>
Bills payable	<b>541</b>	Petty cash in hand	<b>47</b>
		Bad debts	<b>180</b>

**The value of stock on 31<sup>st</sup> December 1999 was Rs.3,700**

15. How can Financial manager use Ratio Analysis to assist him in Efficient Usage of Funds?  
16. What do you mean by Financial Analysis? What are its objectives and explain the procedure of financial analysis.  
17. How can Break even Analysis be a useful device in Profit Planning?  
18. The Following Figures are available from the books of Pluto ltd co. On 31<sup>st</sup> march.

particulars	1998 (Rs.lakhs)	1999(Rs.lakhs)
<b>Sales</b>	<b>150</b>	<b>200</b>
<b>Profit</b>	<b>30</b>	<b>50</b>

**Caluclate:**

- P/V Ratio and total fixed Expenses
- Break Even level of Sales.
- Sales required to earn a desired Profit of 90 lakhs.
- Profit or Loss that would arise if the sales were Rs. 280 lakhs