

**INTERNAL ASSIGNMENT QUESTIONS  
M.C.A. I SEMESTER**

**2024-2025**



**PROF. G. RAM REDDY CENTRE FOR DISTANCE EDUCATION**

(RECOGNISED BY THE DISTANCE EDUCATION BUREAU, UGC, NEW DELHI)

**OSMANIA UNIVERSITY**

(A University with Potential for Excellence and Re-Accredited by NAAC with "A" + Grade)

**DIRECTOR**

**Prof. G.B. Reddy**

**Hyderabad – 7, Telangana State**

**PROF.G.RAM REDDY CENTRE FOR DISTANCE EDUCATION  
OSMANIA UNIVERSITY, HYDERABAD – 500 007**

Dear Students,

Every student of M.C.A. Semester I has to write and submit **Assignment** for each paper compulsorily. Each assignment carries **30 marks**. The marks awarded to the students will be forwarded to the Examination Branch, OU for inclusion in the marks memo. If the student fail to submit Internal Assignments before the stipulated date, the internal marks will not be added in the final marks memo under any circumstances. The assignments will not be accepted after the stipulated date. **Candidates should submit assignments only in the academic year in which the examination fee is paid for the examination for the first time.**

Candidates are required to submit the Exam fee receipt along with the assignment answers scripts at the concerned counter on or before **25.06.2024** and obtain proper submission receipt.

**ASSIGNMENT WITHOUT EXAMINATION FEE PAYMENT RECEIPT (ONLINE) WILL NOT BE ACCEPTED**

**Assignments on Printed / Photocopy / Typed will not be accepted and will not be valued at any cost. Only**

**HAND WRITTEN ASSIGNMENTS will be accepted and valued.**

**Methodology for writing the Assignments (Instructions) :**

1. First read the subject matter in the course material that is supplied to you.
2. If possible read the subject matter in the books suggested for further reading.
3. You are welcome to use the PGRRCDE Library on all working days for collecting information on the topic of your assignments. (10.30 am to 5.00 pm).
4. Give a final reading to the answer you have written and see whether you can delete unimportant or repetitive words.
5. The cover page of the each theory assignments must have information as given in FORMAT below.

**FORMAT**

1. NAME OF THE STUDENT :
2. ENROLLMENT NUMBER :
3. NAME OF THE COURSE :
4. SEMESTER ( I, II, III & IV) :
5. TITLE OF THE PAPER :
6. DATE OF SUBMISSION :
6. Write the above said details clearly on every subject assignments paper, otherwise your paper will not be valued.
7. Tag all the assignments paper wise and submit them in the concerned counter.
8. Submit the assignments on or before **25.06.2024** at the concerned counter at PGRRCDE, OU on any working day and obtain receipt.

**DIRECTOR**

PROF. G. RAM REDDY CENTRE FOR DISTANCE EDUCATION  
OSMANIA UNIVERSITY  
INTERNAL ASSIGNMENT QUESTION PAPER – 2024

MCA - I SEMESTER  
ASSIGNMENT – II  
Mathematical Foundations of Computer Science

Paper : PC-101

Subject : **Mathematical Foundations of Computer Science**

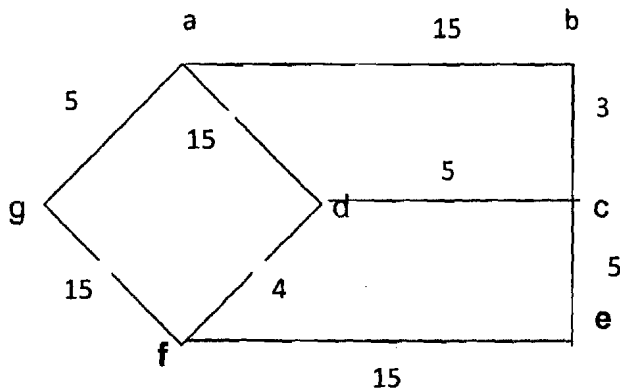
Total Marks: 30

SECTION – A

Answer the following questions

5 x 6 = 30

- 1.(a) Explain Division Algorithm.  
(b) Explain Pigeonhole Principle and Give an example.
2. What is an Equivalence Relation ?  
Let  $X = \{1,2,3,\dots, 7\}$  and  $R = \{(x, Y) / x - y \text{ is divisible by } 3\}$   
Show that R is an equivalence Relation. Draw the graph of R.
3. Explain the following terms (a) Residue Arithmetic (b) Homomorphism
- 4.(a) What is Hamiltonion path and Cycle in a graph ? Give an example  
(b) Define the following terms  
(a) Inverse Function (b) Bijective function
5. a) Define Spanning Tree.  
b) Find a railway network of minimum cost for the cities shown below



Name of the Faculty: **Dr. V.B. Narasimha**  
Dept: Computer Science CSE, UCE, OU

# INTERNAL ASSIGNMENT – 2024

## MCA SEMESTER I

### PAPER – I : MATHEMATICAL FOUNDATIONS OF COMPUTER SCIENCE

#### ASSIGNMENT - I

**Answer the following Questions. (each question carries three marks) 5X3=15**

1. What is Binary Relation ? What are the Properties of Binary Relations ? Give an example for each.
2. (a) State and proof Principle of Inclusion and Exclusion.  
(b) Explain the following terms (i) Complete Graph (ii) Spanning Trees (iii) Binary Trees
3. What is Homogeneous Recurrence Relation? Give an example.
4. Explain the following terms (a) Semi-groups (b) Monoids (c) Groups
5. Solve the Recurrence Relation  
$$S(K) - 7 S(K-1) + 12 s(K-2) = 0$$
 Where  $S(0) = 4, S(1) = 4$

# **INTERNAL ASSIGNMENT – 2024**

## **MCA SEMESTER I**

### **PAPER – II : Data Structures Using C**

#### **ASSIGNMENT - I**

**Answer the following Questions. (each question carries three marks) 5X3=15**

1. Write a notes on various operators, Conditional and Looping Statements available in C with suitable syntax and examples.
2. Discuss briefly about Functions, Call-by-Value, Call-by-reference and Recursion.
3. Write notes on Stacks, Queues and programs to implement all operations on Stacks and Queues.
4. Briefly discuss about AVL Trees and the insertion operation on AVL Trees with suitable Rotations and examples.
5. Discuss in detail about Graphs, Graph Representations and Graph Traversal Techniques.

#### **ASSIGNMENT – II**

**Answer the following Questions. (each question carries three marks) 5X3=15**

1. Write notes on various String Manipulation Functions, Pointers and Structures of C with suitable examples.
2. Discuss in detail about Arrays with Matrix Multiplication Program.
3. Write notes on Linked Lists, Insertion operation on Linked Lists and their Applications.
4. Discuss about Binary Trees, various Binary Tree Representations and Binary Tree Traversals with examples.
5. Write notes on Searching, Sorting and complete C program to implement Quick Sort.

## **INTERNAL ASSIGNMENT – 2024**

### **MCA SEMESTER I**

#### **PAPER – III : Object Oriented Programming Using Java**

##### **ASSIGNMENT - I**

**Answer the following Questions. (each question carries three marks) 5X3=15**

1. Write about benefits of OOP ?
2. List out and explain about character and byte streams classes ?
3. Describe collection classes along with a suitable example ?
4. List out event listener interfaces and write about event delegation model.
5. Explain process of reading and writing into files with an example.

##### **ASSIGNMENT – II**

**Answer the following Questions. (each question carries three marks) 5X3=15**

1. Explain about different types of control statements with an example.
2. Write about multithreading programming and explain how synchronization is achieved.
3. What is the usage and purpose of string tokenization with an example.
4. Write about awt controls with an example.
5. Write about java network programming with an example.

## **INTERNAL ASSIGNMENT – 2024**

### **MCA SEMESTER I**

#### **PAPER – IV : Computer Architecture**

##### **ASSIGNMENT - I**

**Answer the following Questions. (each question carries three marks) 5X3=15**

1. Explain about Fixed Point and Floating Point Representation.
2. What are CPU Registers ? Explain Them.
3. Construct a Bus System for Four Registers using three state Bus Buffers.
4. Draw a Flowchart for Instruction Cycle.
5. Write Arithmetic and Logic Operations.

##### **ASSIGNMENT – II**

**Answer the following Questions. (each question carries three marks) 5X3=15**

1. Explain about the Design of Micro Programme Sequencer.
2. What are Mapping Procedures ? Explain
3. What about Booths Multiplication Algorithm using Flowchart and Numerical Example.
4. Explain the working of DMA Controller.
5. What is Pipelining ? Explain about Arithmetic Pipelining.

**INTERNAL ASSIGNMENT – 2024**  
**MCA SEMESTER I**  
**PAPER – V : Probability and Statistics**

**ASSIGNMENT - I**

**Answer the following Questions. (each question carries three marks) 5X3=15**

1. Define vector space and vector subspace.
2. State and prove the addition theorem of probability.
3. Explain sampling techniques.
4. Write about the testing hypothesis.
5. Differentiate correlation of regression analysis.

**ASSIGNMENT – II**

**Answer the following Questions. (each question carries three marks) 5X3=15**

1. Write about linear transformations and linearly Independent sets.
2. Define conditional probability and State and prove the multiplication theorem of probability.
3. Describe discrete and continuous distributions.
4. Explain point estimate, interval estimate, and confidence level.
5. What is Annova ?



# INTERNAL ASSIGNMENT – 2024

## MCA SEMESTER I

### PAPER – VI : Managerial Economics & Accountancy

#### ASSIGNMENT – I

**Answer the following Questions. (each question carries three marks) 5X3=15**

1. Illustrate briefly the fundamental concepts of Managerial Economics.
2. Differentiate between substitute and complementary goods with suitable examples.
3. Outline briefly the various types of production functions.
4. Distinguish the features of a monopoly and a perfectly competitive market.
5. Calculate the P/v ratio, Break-even point, and Margin of safety from the following details.

Sales = Rs.4,00,000

Fixed cost = Rs.1,00,000

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Variable cost = Rs.2,90,000

#### ASSIGNMENT – II

**Answer the following Questions. (each question carries three marks) 5X3=15**

1. Describe briefly the components, needs, and sources of working capital.
2. A firm with a required rate of return of 10 percent is considering a project that requires an initial outlay of Rs.20,000 and the cash inflows are given as follows:

Year	1	2	3	4	5
Cash-inflow (Rs.)	3,000	4,000	6,000	5,000	4,000

Calculate the Payback, and NPV and suggest whether the Project is acceptable or not. A discount rate of 10% to be used. Present Value at 10% rate are 0.909, 0.826, 0.751, 0.683, 0.621

3. Write a note on the Payback period in capital budgeting.
4. What is a cash book ? State the formats of various types of cash book.
5. From the following information, prepare the **Trading** account for the year ending 31<sup>st</sup> March, 2006:  
Adjusted / Net purchases = Rs.12,00,000  
Sales = Rs.13,50,000  
Closing Stock = Rs. 85,000

# **INTERNAL ASSIGNMENT – 2024**

## **MCA SEMESTER I**

### **PAPER – VII : Soft Skills Lab**

#### **ASSIGNMENT - I**

**Answer the following Questions. (each question carries three marks) 5X3=15**

1. Write a note on Reading Strategies.
2. What is perform time management ?
3. Explain the role of Team Work.
4. What are Leadership traits ?
5. What is Emotional Intelligence ?

#### **ASSIGNMENT – II**

**Answer the following Questions. (each question carries three marks) 5X3=15**

1. Explain Learning Styles and Strategies
2. What is multiple Intelligence ?
3. Write a note on Listening to News Programmes.
4. What is Spiritual Quotient ?
5. Discuss the Structure of Resume.