INTERNAL ASSIGNMENT QUESTIONS
M.C.A. I SEMESTER

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. N. Ch. Bhatracharyulu

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 **30.08.2025** 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 **30.08.2025** at the concerned counter at PGRRCDE, OU on any working day and obtain receipt.

DIRECTOR

INTERNAL ASSIGNMENT – 2025

MCA SEMESTER I

PAPER – I : MATHEMATICAL FOUNDATIONS OF COMPUTER SCIENCE

ASSIGNMENT - I

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

1. Explain Division Algorithm
2. Explain Pigeonhole Principle and Give an example.
3. Explain the following terms (a) Residue Arithmetic (b) Homomorphism
4. What is Hamiltonion path and Cycle in a graph? Give an example.
5. Define the following terms :
   (a) Inverse Function (b) Bijective function

ASSIGNMENT – II

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

1. Define Tautology and Contradiction.
2. What is Homogeneous Recurrence Relation ? Give an example.
3. Explain the following terms (a) Semi-groups (b) Monoids
4. State and proof Principle of Inclusion and Exclusion.
5. Define Planar graph. Give an example.

INTERNAL ASSIGNMENT – 2025

MCA SEMESTER I

PAPER – II : Data Structures Using C

ASSIGNMENT - I

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

1. Discuss about Data Types, Operators & Conditional statements of 'C'.
2. Write notes on functions, recursive functions & call-by-reference.
3. What are Linear Data Structures, Stacks & Queues. Write a C program to implement all operations on a STACK using Array's?
4. Write notes on Binary Trees their representation & Traversal.
5. a) Write programs on 1) Binary Search 2) Selection Sort

   b) Discuss about Hashing & Collision Resolution Techniques.

ASSIGNMENT – II

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

1 Discuss about Pointers, String Manipulation functions and structures with syntax egs.

2. Explain about looping statements of 'C'; and Operator precedence.
3. What are linked lists? Write various operations on a linked list with their implementation code.
4. Write notes on storage classes, preprocessor directives and structure of a C program.
5. A) Write notes about Graphs, Graph Representations and Graph Traversals.

   B) Explain about linear search, merge sort and quick sort with complete 'C' program.

INTERNAL ASSIGNMENT – 2025

MCA SEMESTER I

PAPER – III : Object Oriented Programming Using Java

ASSIGNMENT - I

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

1. Explain the key concepts of Object-Oriented Programming and how they contribute to software development.

2. Discuss the role and usage of control statements in Java. How do they influence program flow?

3. Describe the difference between byte streams and character streams in Java. Give examples of where each is used.

4. What is multithreading in Java? Discuss its significance and the problems it solves in application development.

5. Write a detailed note on the Java Collections Framework. Highlight the differences between Set, List, and Map interfaces.

ASSIGNMENT – II

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

1. Explain the purpose and use of Comparator in Java. How does it differ from Comparable?

2. What is the role of legacy classes and interfaces in Java? Describe with examples such as Vector, Stack, or Hashtable.

3. Describe the Delegation Event Model in Java. What are its key components and how does it differ from the earlier event handling mechanism?

4. What are Layout Managers in Java AWT? Compare Flow Layout, Border Layout, and Grid Layout with suitable use cases.

5. What is the difference between AWT and Swing components in Java? Highlight the advantages of Swing.

INTERNAL ASSIGNMENT – 2025

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 Representations and Floating Point Representation.
2. Describe about instruction cycle and interrupt cycle using flow charts.
3. Convert (i) 111011.11 to Decimal numbers (ii) 825.65 to binary (iii) Add 110111+101101
4. List and explain memory, Register and I/o reference instructions.
5. Explain about Hardware design of control unit.

ASSIGNMENT – II

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

1. Explain about mapping procedures.
2. Discuss about design of control unit using micro programmed control.
3. With a neat diagram explain about booth's multiplication algorithm. Give a numerical example.
4. Explain about working of DMA controller using block diagram.
5. What are addressing modes. Explain how they are used.

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MCA SEMESTER I

PAPER – V : Probability and Statistics

ASSIGNMENT - I

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

1. Explain rector spaces and null spaces with examples.
2. State and prove the addition probability theorem.
3. Write about sampling distributions.
4. Explain Testing of Hypothesis for one sample and two samples.
5. Define ANOVA. Give example.

ASSIGNMENT – II

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

1. Write about linearly Independent and dependent sets.
2. Explain normal distribution with an example.
3. Define estimations with suitable example.
4. What are small and large sample tests?
5. Differentiate correlation and regression analysis.

INTERNAL ASSIGNMENT – 2025

MCA SEMESTER I

PAPER – VI : Managerial Economics & Accountancy

ASSIGNMENT – I

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

1. What are production decisions?
2. Differentiate direct demand and indirect demand.
3. Explain any two practical significance of managerial economics.
4. Analyse the assumptions of BE analysis.
5. Tell about the wbb-doughlas production function.

ASSIGNMENT – II

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

1. What is monopoly ?
2. Restate the sources of Working Capital.
3. Differentiate the NPV & IRR method of capital budgeting.
4. Write notes on (a) Journal (b) Ledger
5. Explain the Contra-entry situations.