MCA 1st Semester Important Questions (AKNU)

Discrete Mathematical Structures:

- What is a set? Explain types of sets with examples.
- Define and explain relations and their properties.
- Explain different types of functions with examples.
- What is a group? State and prove group properties.
- Define Lattice and its types with examples.
- What is a Boolean algebra? Explain its laws.
- Explain De-Morgan's laws with truth tables.
- Write about Graphs and their applications.
- Explain trees and spanning trees with example.

Management Accountancy:

- Define Accounting. Explain objectives and types.
- What is double-entry system? Give rules and format.
- Explain Journal, Ledger, and Trial Balance with examples.
- What is Ratio Analysis? Explain its importance.
- Explain Profit & Loss account with a format.
- Define Balance Sheet. Explain components.
- Explain working capital and its significance.
- What is fund flow statement? Explain with format.
- Difference between Cost Accounting and Management Accounting.

C Programming & Data Structures:

- Structure of a C program - explain with example.
- What are data types in C? Explain with memory size.
- Difference between if, switch, while and for.
- Explain arrays with syntax and example.
- Write a program for matrix addition and multiplication.
- What is a pointer? Explain pointer arithmetic.
- Explain structure vs union with example.
- What is a linked list? Explain types.

- Explain stack and queue with operations.

Computer Organization:

- Draw and explain block diagram of a computer.
- Explain different types of instruction formats.
- What are addressing modes? Explain types with examples.
- Difference between RISC and CISC.
- What is microprogramming? Explain its use.
- Explain cache memory and its mapping techniques.
- Describe pipelining and its advantages.
- Explain memory hierarchy.
- What is virtual memory?

Operating Systems:

- What is an Operating System? Explain its functions.
- Types of OS - batch, time-sharing, real-time, etc.
- Explain Process, PCB, and process states.
- What is CPU scheduling? Explain FCFS, SJF, RR.
- Explain deadlock, conditions and avoidance.
- What is paging and segmentation?
- Difference between logical and physical address.
- What is file system? Explain file allocation methods.
- Explain memory management techniques.

C Programming & Data Structures Lab:

- Write a C program to check palindrome.
- Program to find factorial using recursion.
- Program to implement stack using array.
- Program to reverse a string.
- Program to sort an array (bubble, selection sort).
- Implement linked list operations in C.
- Program to implement queue using structure.
- Create a menu-driven program using switch.

Operating Systems Lab:

- Implement FCFS and SJF scheduling algorithms.
- Program to simulate Round Robin scheduling.
- Program to simulate page replacement (FIFO, LRU).
- Program for Banker's Algorithm.
- Shell script to find largest of three numbers.
- Shell script to check whether a number is even or odd.
- Shell script to display system information.
- Simulate producer-consumer problem.