IMPORTANT TOPICS FOR EACH THEORY SUBJECT

OPERATING SYSTEMS:

1. Operating Systems and its types.
2. Process Management (Attributes, States of Process)
3. CPU Scehduling Algorithms (FCFS, SJF, SRTF, Round Robin, Priority Scheduling)
4. Process Synchronisation (Necessary Conditions, Bakery Algorithm, Producer-Consumer Problem, Dining Philosopher Problem, Read-Write Problem)
5. Mutex and Semaphores (Important)
6. Threads (Important)
7. Deadlocks (Necessary Conditions, Banker's Algorithm, Deadlock Prevention, Avoidance, Recovery, Correction)
8. Memory Management (Multi-partition, External and Internal Fragmentation, Paging, Segmentation)
9. Virtual Memory (Demand Paging, Page replacement algorithms, Thrashing)
10. File allocation (Coninuous, Linked and Index File allocation)
11. Disk Scheduling Algorithms (FIFO, SCAN, C-SCAN, LOOK, C-LOOK)

COMPUTER NETWORKS:

1. OSI Model (Functions of different layers)
2. TCP/IP Protocol Suite
3. Data Link Layer (Error detection techniques, Framing)
4. Network Layer (Routing protocols, IPv4 and IPv6 - Supernetting and Subnetting)
5. Transport Layer (3 way Handshake, TCP packet components, UDP packet components, Advantages of UDP over TCP, Applications of UDP)

OBJECT ORIENTED PROGRAMMING (C++):

1. Concepts of OOPS (Important)
2. Types of polymorphism
3. Virtual Functions - Run-time Polymorphism
4. Inheritance (Types, Virtual Class, Dreaded Diamond Problem)
5. Constructors and Destructors (Private Constructors and Destructors, Virtual Destructors)
6. Smart pointers
7. Singleton class
8. Friend function and friend class

DATABASE MANAGEMENT SYSTEM:

1. SQL Queries
2. Normalization (Meaning, Reason of normalizing tables, Different Normal Forms)

3. Lossless and Lossy Decomposition
4. Different types of keys in a table (Primary, Composite, Candidate, Super Key)
5. ER model (Meaning and Components)
6. File Structure (B-trees, Indexing)
7. Concurrency issues