HPC

1) HPC intro & Stored Program Architecture
2) Cache based microprocessor
3) Performance & Benchmarks
4) Moore's Law
5) Pipelining, Superscalarity & SIMD
6) Memory Hierarchy & Cache & Cache Mapping
7) Multicore & Multithread & Prefetching.
8) Vector processing.

Network Security :-

1) Networking Device & types of Attacks
2) Firewall :- ACL, Packet filtering, DMZ, Alert
3) Audit trials, IDS & IPS. (IPS types).
4) Applications & Malicious Software.

Artificial Intelligence :-

1) Introduction to AI
2) Problem Solving with AI
3) AI Models, Data acquisition & learning aspects
4) Problem types, characteristics & Problem space & search
5) Intelligent agent, Rationality & Rational agent
6) Flexibility and intelligent agents
7) Types of agents
8) Constraint satisfaction problem (CSP)
9) Crypto arithmetic puzzles
10) CSP as search problem
11) CSP Backtracking & CSP Forward checking
12) CSP Intelligent Backtracking

Compiler Design

1. Compiler Intro & it Phases & it Cousins
2. Compiler Construction tools
3. Lexical Analysis
4. Input Buffering + Specification of tokens
5. Finite automata
6. NFA to DFA (Thompson Method)
7. RE to DFA (Direct method)
8. Design of Lexical analysis

DBMS

1. DBMS vs File System & Purpose of DBMS
2. Views of Data
3. Database System Architecture
4. Data Independence
5. Evolution of Data Models
6. Degree of Data Abstraction
7. Database users & DBA
8. Database Languages

Quants :-

1. HCF, LCM
2. Highest exponents
3. Trailing Zeros
4. Remainders
5. Unit Digits