### **L1 (Prime Numbers: Primality Testing and Factorization)**

1. Derive the formula for number of a divisors of a number
2. Derive the formula for sum of divisors of a number
3. Derive the formula for product of divisors of a number
4. Finding all divisors of a number in O(sqrt(n))
5. Finding all prime factors of a number in O(sqrt(n))

### **L2 (Sieve of Eratosthenes and its variations)**

1. No problems - just some concepts i.e. Sieve, Segmented Sieve, Linear Sieve.

### **L3 (Problem Solving - 1)**

1. <https://www.spoj.com/problems/NFACTOR/>
2. <https://www.spoj.com/problems/HS08PAUL/>
3. <https://codeforces.com/contest/776/problem/B>
4. <https://codeforces.com/problemset/problem/546/D>

### **L4 (Doubt Clearing Session)**

1. <https://www.spoj.com/problems/PRIME1/>

### **L5 (Modular Arithmetic and Binary Exponentiation)**

1. <https://codeforces.com/problemset/problem/630/I>
2. <https://codeforces.com/contest/1344/problem/A>

### **L6 (The Euclidean Algorithm (Basic and Extended))**

1. <https://www.codechef.com/problems/RD19>
2. <https://www.codechef.com/problems/GCDQ>

### **L7 (Problem Solving - 2)**

1. <https://codeforces.com/problemset/problem/1305/C>
2. <https://codeforces.com/contest/1152/problem/C>
3. <https://codeforces.com/contest/1349/problem/A>
4. <https://codeforces.com/problemset/problem/1294/C>
5. <https://codeforces.com/contest/1228/problem/C>

### **L8 (Doubt Clearing Session)**

1. <https://codeforces.com/problemset/problem/1458/A>
2. <https://codeforces.com/contest/1538/problem/D>

### **L9 (Linear Diophantine Equations and Modular Inverse)**

1. <https://codeforces.com/problemset/problem/7/C>
2. <https://codeforces.com/problemsets/acmsguru/problem/99999/106>

### **L10 (Euler's Totient Function)**

1. <https://www.codechef.com/problems/GCDFUN>

### **L11 (Problem Solving - 3)**

1. <https://www.codechef.com/problems/GCDFUN>
2. <https://codeforces.com/problemsets/acmsguru/problem/99999/106>
3. <https://atcoder.jp/contests/abc162/tasks/abc162_e>

### **L12 (Doubt Clearing Session)**

1. <https://codeforces.com/contest/1537/problem/D>
2. <https://codeforces.com/problemset/problem/1370/C>

### **L13 (Fermat's Little Theorem and Modulo Inverse Continued)**

1. Find (a^b^c^d) % mod where mod = 1e9 + 7, 1 <= a,b,c,d <= 1e8, b is odd
2. Find A ^ (n!) % mod where mod = 1,000,003, 1 <= A <= 10^6 , 1 <= n <= 1e18

### **L14 (Problem Solving - 4)**

1. <https://www.codechef.com/APRIL20A/problems/STRNO/>
2. <https://www.codechef.com/problems/ICL1903>
3. <https://codeforces.com/problemset/problem/1295/D>

### **L15 (Problem Solving - 5)**

1. <https://cses.fi/problemset/task/2417>
2. <https://codeforces.com/problemset/problem/1470/B>

### **L16 (Doubt Clearing Session)**

1. <https://www.codechef.com/problems/MULTHREE>
2. <https://codeforces.com/contest/1260/problem/C>
3. <https://codeforces.com/contest/1485/problem/D>

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