



## DAY 3 — STUDY PLAN (Class 12 Priority)

*(40 min Physics + 40 min Chemistry + 40 min Maths + built-in revision)*

This follows directly after Day 1 (Electrostatics basics, Solid State basics, Relations & Functions P1).

Since you skipped Day 2, I will automatically adjust pacing so nothing is missed.

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### 1 PHYSICS — Electrostatics (Electric Field Lines + Electric Flux)

Topics to cover today:

- ◆ **Electric field lines**

- Properties of electric field lines
- Field lines for + and – charges
- Field lines between two like charges
- Field lines between + and – charges

- ◆ **Electric flux (basic idea only)**

- Definition
- Formula:  $\Phi = \mathbf{E} \cdot \mathbf{A} = EA \cos\theta$
- Physical meaning (how many field lines pass through a surface)

- ◆ **Charge distribution examples**

- Electric field due to point charge (revision)
  - Simple numerical examples (conceptual)
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### 2 CHEMISTRY — Solid State (Unit Cell Parameters + Packing)

Topics to cover today:

- ◆ **Types of unit cells**

- Simple cubic (SC)

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- Body-centered cubic (BCC)
- Face-centered cubic (FCC)

#### ◆ Unit cell parameters

- Edge length ( $a$ )
- Relationship with radius ( $r$ ):
  - SC  $\rightarrow a = 2r$
  - BCC  $\rightarrow 3a = 4r$
  - FCC  $\rightarrow 2a = 4r$

#### ◆ Packing in solids

- Coordination number
- Packing efficiency (basic understanding, formula tomorrow)



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## MATHS — Relations & Functions (Part 2)

Topics to cover today:

#### ◆ Equivalence relations

- Reflexive
- Symmetric
- Transitive
- When all three hold  $\rightarrow$  equivalence relation

#### ◆ Function basics

- Definition of function
- Domain & codomain
- Vertical line test
- Examples from NCERT 1.3

#### ◆ Practice 6–8 simple questions NCERT Ex 1.3



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## DAILY REVISION (Built-in)

## ✓ TODAY'S REVISION (10 minutes each)

- Physics → revise "charge, Coulomb's law, electric field"
- Chemistry → revise "types of solids + crystal lattice"
- Maths → revise "relations, domain, range"

## ✓ AUTOMATIC (24-hour + 1-week tracking)

I will insert revision items automatically when due.

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## NOTEBOOK UPDATES FOR TODAY

At night after your review, I will update:



**Maths Formula Notebook** → next 10 concepts



**Physics Formula Notebook** → formulas from electric field lines & flux



**Organic Chemistry Reaction Notebook** → (still empty until Month 2)



**General Notes Notebook** → short concepts from today

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## TODAY'S SHORTCUTS & TRICKS

### ★ Physics (Electrostatics)

- Field lines never cross → because two directions at a point is impossible.
- Closer field lines → stronger field.
- Electric flux is max when  $\theta = 0^\circ$  ( $E \perp$  surface).
- For point charge,  $E \propto 1/r^2$  → ALWAYS used in JEE quick elimination.

### ★ Chemistry (Solid State)

- Highest packing efficiency → FCC > BCC > SC
- Coordination number:
  - SC → 6
  - BCC → 8
  - FCC → 12
- If a formula looks confusing → memorize pattern first, derive later.

### ★ Maths (Relations & Functions)

- For quick checking of equivalence relation:  
RST rule → Reflexive, Symmetric, Transitive
  - If any one fails → NOT equivalence.
  - For function check:  
Every  $x \rightarrow$  exactly one  $y$
  - Use vertical line test mentally.
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## TODAY'S MINI ASSIGNMENT (for evening)

After you say "Day 3 completed, give question review",

I will give:

- ✓ 10 Physics questions (Day 3 topics)
  - ✓ 10 Chemistry questions (Day 3 topics)
  - ✓ 10 Maths questions (Day 3 topics)
  - a few mixed from Day 1 for spaced revision.
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When you finish your studies today, just say:

 Day 3 completed, give question review.