

Crack CSIR NET Science Stream 2026



Complete Guide for JRF & Assistant Professor Eligibility (Life / Physical / Chemical / Math) with Solved Previous Years' Papers

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Title: *Crack CSIR NET Science Stream 2026*

Subtitle: Complete Guide for JRF & Assistant Professor
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General Aptitude (Section A)

Concept:

The **General Aptitude (Section A)** of the CSIR NET exam is **common for all streams** — Life Sciences, Chemical Sciences, Physical Sciences, Mathematical Sciences, and Earth/Atmospheric/Ocean/Planetary Sciences. This section tests the overall analytical, logical, and numerical ability of the candidate.

It is designed to evaluate **scientific reasoning, comprehension, and problem-solving aptitude**, rather than subject-specific knowledge.

Questions in this section are meant to test how efficiently a candidate can analyze data, interpret information, and apply mathematical logic to arrive at the correct answer.

Syllabus Overview:

The General Aptitude section mainly consists of questions from the following broad areas:

- Quantitative Aptitude
- Logical & Analytical Reasoning
- Data Interpretation & Graphical Analysis
- Numerical Ability
- Basic Geometry and Mensuration
- General Science & Research Aptitude

Each of these areas is essential to developing the cognitive and problem-solving skills expected from a researcher or scientist. Now let us begin with the **first topic: Quantitative Aptitude**.

Topic 1: Quantitative Aptitude

Concept:

Quantitative Aptitude deals with numerical calculations, arithmetic operations, and mathematical problem-solving. It measures a candidate's ability to handle numbers and quantitative data efficiently and accurately.

The questions in this section are usually straightforward but may require logical thinking, approximation, and quick calculation skills.

Key Areas Covered:

- Number System and Basic Arithmetic
- Ratio and Proportion
- Percentage and Profit & Loss
- Simple Interest & Compound Interest
- Time, Speed, and Distance
- Time and Work
- Average and Alligation
- Permutations & Combinations
- Probability and Basic Statistics

Detailed Explanation of Subtopics

1. Number System:

This is the foundation of quantitative aptitude. It involves understanding types of numbers (natural, integers, rational, irrational, real), divisibility, factors, multiples, prime numbers, and LCM/HCF.

Key Formulas:

- $\text{HCF} \times \text{LCM} = \text{Product of two numbers}$
- If a number is divisible by both 2 and 3, it is divisible by 6.
- The remainder theorem and modular arithmetic often appear in tricky questions.

Example 1:

If the product of two numbers is 180 and their HCF is 6, find their LCM.

Solution:

$$\text{LCM} = \text{Product} \div \text{HCF} = 180 \div 6 = \mathbf{30}$$

Example 2:

Find the smallest number that leaves remainders 1, 2, and 3 when divided by 2, 3, and 4 respectively.

Solution:

$$\text{Required number} = \text{LCM}(2, 3, 4) + 1 = 12 + 1 = \mathbf{13}$$

2. Ratio and Proportion:

It measures comparative relationships between two quantities.

Formulae:

- $\text{Ratio} = a : b = a/b$
- $\text{Proportion: } a/b = c/d \rightarrow ad = bc$
- $\text{Compound Ratio} = (a/b) \times (c/d)$
- If $a : b = 2 : 3$ and $b : c = 4 : 5$, then $a : b : c = 8 : 12 : 15$

Example 1:

If 3 pens cost ₹18, find the cost of 7 pens.

Solution: Cost is directly proportional to quantity.

$$(3/7) = (18/x) \rightarrow x = (7 \times 18)/3 = ₹42$$

Example 2:

In a mixture of milk and water, the ratio is 4:1. If 10 liters of water is added, the ratio becomes 2:1. Find the initial quantity of the mixture.

Solution:

Let milk = $4x$, water = x

After adding water: milk = $4x$, water = $x + 10$

$$(4x)/(x + 10) = 2/1 \rightarrow 4x = 2x + 20 \rightarrow x = 10$$

Total mixture = $4x + x = \mathbf{50 \text{ liters}}$

3. Percentage:

Used frequently in problems involving change, profit, loss, and data interpretation.

Formulae:

- Percentage = $(\text{Value} / \text{Total Value}) \times 100$
- Profit % = $(\text{Profit} / \text{Cost Price}) \times 100$
- Loss % = $(\text{Loss} / \text{Cost Price}) \times 100$
- Successive Change = $a + b + (ab/100)$

Example 1:

The population of a town increases by 10% annually. If the present population is 2,42,000, what will be the population after 2 years?

Solution:

$$\text{Future population} = 242000 \times (1 + 10/100)^2 = 242000 \times 1.21 = \mathbf{2,92,820}$$

Example 2:

A student scores 80 marks in a paper of 100 marks. What percent did he score?

$$= (80/100) \times 100 = \mathbf{80\%}$$

4. Simple and Compound Interest:

Used in financial and data-related problems.

Formulas:

- Simple Interest (SI) = $(P \times R \times T) / 100$
- Compound Interest (CI) = $P \times (1 + R/100)^t - P$

Example 1:

Find the Simple Interest on ₹5000 at 10% per annum for 2 years.

$$SI = (5000 \times 10 \times 2) / 100 = \mathbf{₹1000}$$

Example 2:

Find Compound Interest on ₹5000 at 10% per annum for 2 years.

$$CI = 5000 \times (1.10)^2 - 5000 = 5000 \times 1.21 - 5000 = ₹6050 - ₹5000 = \mathbf{₹1050}$$

5. Time, Speed and Distance:

These problems involve motion and relative speed.

Formulas:

- Speed = Distance / Time

- Distance = Speed \times Time
- Time = Distance / Speed
- When two bodies move towards each other: Relative Speed = (A + B)
- When two bodies move in the same direction: Relative Speed = |A - B|

Example 1:

A car covers 180 km in 3 hours. Find its speed.

$$\text{Speed} = 180 / 3 = \mathbf{60 \text{ km/h}}$$

Example 2:

Two trains of length 100m and 120m are moving in opposite directions with speeds of 60 km/h and 40 km/h. Find the time taken to cross each other.

$$\text{Relative Speed} = 60 + 40 = 100 \text{ km/h} = (100 \times 1000) / 3600 = 27.78 \text{ m/s}$$

$$\text{Distance} = 100 + 120 = 220 \text{ m}$$

$$\text{Time} = \text{Distance} / \text{Speed} = 220 / 27.78 = \mathbf{7.92 \text{ seconds } (\approx 8 \text{ sec})}$$

6. Time and Work:

These problems involve efficiency and work-sharing.

Formulas:

- Work = Rate \times Time
- If A can complete work in x days, A's one day work = $1/x$
- If A and B together do the work, their combined work = $(1/x + 1/y)$ per day

Example 1:

A can complete a task in 10 days, B in 15 days. How long will they take together?

$$1/x = 1/10 + 1/15 = (3 + 2)/30 = 5/30 = 1/6 \rightarrow \mathbf{6 \text{ days}}$$

Solved Example (Mixed Concept):

A man walks 20% faster than another and takes 10 minutes less to cover a distance of 2 km. Find the slower man's speed.

Solution:

Let slower man's speed = x km/h \rightarrow faster = $1.2x$

Distance = 2 km

Time difference = 10 minutes = $1/6$ hr

$$\Rightarrow (2/x) - (2/1.2x) = 1/6$$

$$\Rightarrow (2/x)[1 - (1/1.2)] = 1/6$$

$$\Rightarrow (2/x)(0.1667) = 1/6$$

$$\Rightarrow x = 2$$

Thus, **slower man's speed = 2 km/h** and **faster man's speed = 2.4 km/h**

Practice Questions (with Hints):

1. The ratio of ages of A and B is 3:5. After 10 years, their ages will be 23 and 35 respectively. Find their present ages.
(Hint: Use ratio-age relation method)
2. A sum becomes ₹720 in 2 years and ₹792 in 3 years at simple interest. Find the principal and rate of interest.
(Hint: Difference gives 1 year's interest)

3. Two pipes can fill a tank in 12 and 15 minutes respectively. If both are opened together, find the time taken to fill the tank.
(Hint: Add rates of work)
4. The average of 5 consecutive even numbers is 44. Find the smallest number.
(Hint: Middle term = Average)
5. The cost price of 12 pens is equal to the selling price of 10 pens. Find the profit percent.
(Hint: Profit = $(SP - CP)/CP \times 100$)

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