# TYBA COACHING CENTRE, AJMER

**RMS CET CLASS VI MATHEMATICS • CHAPTER 11: SIMPLE INTEREST — ANSWER KEY & SOLUTIONS**

Director: Narayan Prajapati • Helpline: 6367029449 • 100% Bilingual Step-by-Step Solutions

| Q01 | Q02 | Q03 | Q04 | Q05 | Q06 | Q07 | Q08 | Q09 | Q10 |
|---|---|---|---|---|---|---|---|---|---|
| (A) ₹300 | (B) ₹5,220 | (C) 6% | (D) 5 yrs | (A) ₹4,000 | (B) 10% | (C) 10% | (D) ₹480 | (A) ₹73 | (B) 6% |
| **Q11** | **Q12** | **Q13** | **Q14** | **Q15** | **Q16** | **Q17** | **Q18** | **Q19** | **Q20** |
| (C) ₹2,000 | (D) 10% | (A) ₹180 | (B) ₹2,400 | (C) 5 yrs | (D) 6(2/3)% | (A) ₹900 | (B) 30 yrs | (C) ₹300 | (D) ₹11,800 |

## SECTION I: DETAILED STEP-BY-STEP SOLUTIONS (Q01 TO Q10) — Balanced Key: 5A, 5B, 5C, 5D

**Solution 01: Basic Simple Interest** — **Correct: (A) ₹300**

`SI = (P × R × T) / 100` = (2,000 × 5 × 3) / 100 = 20 × 15 = **₹300**.

व्याख्या: साधारण ब्याज = (2000 × 5 × 3) / 100 = ₹300।

**Solution 02: Calculating Total Amount** — **Correct: (B) ₹5,220**

SI = (4,500 × 8 × 2) / 100 = 45 × 16 = ₹720. Amount = 4,500 + 720 = **₹5,220**.

व्याख्या: ब्याज = ₹720। मिश्रधन = 4500 + 720 = ₹5,220।

**Solution 03: Finding Annual Rate** — **Correct: (C) 6%**

`R = (SI × 100) / (P × T)` = (1,200 × 100) / (5,000 × 4) = 120,000 / 20,000 = **6%**.

व्याख्या: दर = (1200 × 100) / (5000 × 4) = 6% वार्षिक।

**Solution 04: Finding Time Period** — **Correct: (D) 5 years**

`T = (SI × 100) / (P × R)` = (1,500 × 100) / (3,000 × 10) = 150,000 / 30,000 = **5 years**.

व्याख्या: समय = (1500 × 100) / (3000 × 10) = 5 वर्ष।

**Solution 05: Finding Principal** — **Correct: (A) ₹4,000**

`P = (SI × 100) / (R × T)` = (720 × 100) / (6 × 3) = 72,000 / 18 = **₹4,000**.

व्याख्या: मूलधन = (720 × 100) / (6 × 3) = ₹4,000।

**Solution 06: Sum Doubling Shortcut** — **Correct: (B) 10%**

For doubling, n = 2. `R = [(2 - 1) × 100] / 10` = 100 / 10 = **10%**.

व्याख्या: दोगुना होने पर 100% ब्याज मिलता है। अतः दर = 100 / 10 = 10%।

**Solution 07: Sum Tripling Shortcut** — **Correct: (C) 10%**

For tripling, n = 3. `R = [(3 - 1) × 100] / 20` = 200 / 20 = **10%**.

व्याख्या: तिगुना होने पर 200% ब्याज मिलता है। अतः दर = 200 / 20 = 10%।

**Solution 08: Months to Years Conversion** — **Correct: (D) ₹480**

T = 8 / 12 = 2/3 year. SI = (6,000 × 12 × 2) / (100 × 3) = 60 × 4 × 2 = **₹480**.

व्याख्या: 8 माह = 2/3 वर्ष। ब्याज = (6000 × 12 × 2) / (100 × 3) = ₹480।

**Solution 09: Days to Years Conversion** — **Correct: (A) ₹73**

T = 73 / 365 = 1/5 year. SI = (7,300 × 5 × 1) / (100 × 5) = 73 × 1 = **₹73**.

व्याख्या: 73 दिन = 1/5 वर्ष। ब्याज = (7300 × 5 × 1) / (100 × 5) = ₹73।

**Solution 10: Rate from Amount** — **Correct: (B) 6%**

SI = 6,500 - 5,000 = ₹1,500. R = (1,500 × 100) / (5,000 × 5) = 150,000 / 25,000 = **6%**.

व्याख्या: ब्याज = 6500 - 5000 = ₹1,500। दर = (1500 × 100) / (5000 × 5) = 6%।

## SECTION II: DETAILED SOLUTIONS (Q11 TO Q20) & NARAYAN SIR'S EXAM HACKS — Score Analysis & Speed Optimization

**Solution 11: Two Amounts at Different Years** — **Correct: (C) ₹2,000**

1 year SI = 2,900 - 2,600 = ₹300. 2 years SI = ₹600. Principal = 2,600 - 600 = **₹2,000**.
व्याख्या: 1 वर्ष का ब्याज = ₹300, तो 2 वर्ष का ब्याज = ₹600। मूलधन = 2600 - 600 = ₹2,000।

**Solution 12: Finding Rate %** — **Correct: (D) 10%**

R = (450 × 100) / (1,500 × 3) = 45,000 / 4,500 = **10%**.
व्याख्या: दर = (450 × 100) / (1500 × 3) = 10%।

**Solution 13: Difference in Interests** — **Correct: (A) ₹180**

Difference in Rate = 8% - 5% = 3%. Diff in SI = (2,000 × 3 × 3) / 100 = 20 × 9 = **₹180**.
व्याख्या: दरों का अंतर = 3%। ब्याज में अंतर = (2000 × 3 × 3) / 100 = ₹180।

**Solution 14: Decimal Rate Calculation** — **Correct: (B) ₹2,400**

SI = (8,000 × 7.5 × 4) / 100 = 80 × 30 = **₹2,400**.
व्याख्या: 7.5 × 4 = 30। ब्याज = (8000 × 30) / 100 = ₹2,400।

**Solution 15: Time from Amount** — **Correct: (C) 5 years**

SI = 1,680 - 1,200 = ₹480. T = (480 × 100) / (1,200 × 8) = 48,000 / 9,600 = **5 years**.
व्याख्या: ब्याज = ₹480। समय = (480 × 100) / (1200 × 8) = 5 वर्ष।

**Solution 16: Equal Rate and Time (R = T)** — **Correct: (D) 6(2/3)%**

`R = √[(4 / 9) × 100]` = √(400 / 9) = 20 / 3 = **6(2/3)%**.
व्याख्या: दर = √[(4/9) × 100] = 20/3 = 6(2/3)%।

**Solution 17: Fractional Years** — **Correct: (A) ₹900**

SI = (3,600 × 10 × 2.5) / 100 = 36 × 25 = **₹900**.
व्याख्या: ब्याज = 36 × (10 × 2.5) = 36 × 25 = ₹900।

**Solution 18: Multiple Times Comparison** — **Correct: (B) 30 years**

T2 = [(7 - 1) / (4 - 1)] × 15 = (6 / 3) × 15 = 2 × 15 = **30 years**.
व्याख्या: 4 गुना (300% ब्याज) = 15 वर्ष; 7 गुना (600% ब्याज) = 15 × 2 = 30 वर्ष।

**Solution 19: Half-Yearly Rate Conversion** — **Correct: (C) ₹300**

4% per half-year = 8% per annum. SI = (2,500 × 8 × 1.5) / 100 = 25 × 12 = **₹300**.
व्याख्या: 4% छमाही = 8% वार्षिक। ब्याज = (2500 × 8 × 1.5) / 100 = ₹300।

**Solution 20: Total Amount Repayment** — **Correct: (D) ₹11,800**

SI = (10,000 × 9 × 2) / 100 = ₹1,800. Amount = 10,000 + 1,800 = **₹11,800**.
व्याख्या: ब्याज = ₹1,800। कुल मिश्रधन = 10,000 + 1,800 = ₹11,800।

**NARAYAN SIR'S 5 GOLDEN HACKS FOR SIMPLE INTEREST (नारायण सर के 5 स्वर्णिम सूत्र):**
**1. 73-Day Rule:** 73 days = 1/5 yr, 146 days = 2/5 yr, 219 days = 3/5 yr — memorize this instantly!
**2. Percentage Shortcut:** SI% is simply **R × T%** of Principal. Amount% = **(100 + R × T)%**.
**3. Multiples Formula:** Becoming n times means earning **(n - 1) × 100%** interest.
**4. Equal Yearly SI:** Difference between two Amounts over different years = pure SI of the gap years.
**5. Annualize Rate:** Always convert per-month (×12) or half-yearly (×2) rate to annual before solving!