

BOARD-PATTERN PRACTICE PAPER · CBSE CLASS 11**Numbers, Quantification and Numerical Applications**

Applied Mathematics · Chapter 1 · Matches current CBSE blueprint · Each question PYQ-sourced where indicated

DATE	TOTAL MARKS	DURATION	MARKING	TARGET
_____	30	60 min	As per board	$\geq 24/30$

GENERAL INSTRUCTIONS

- All questions are compulsory.
- Section A — short calculation (2 marks each).
- Section B — word problem with full working (3 marks each).
- Section C — long-answer, multi-step reasoning (5 marks each).
- Show every step. Final answers without intermediate working will be heavily penalised.
- Class 11 is internal school assessment; this paper follows the CBSE Applied-Maths (241) SQP pattern.

Section A — Short calculation ($2 \times 4 = 8$ marks)**8 MARKS · 16 MIN**

- Q1.** Convert the decimal number 45 into a binary number, showing your division steps. [PYQ 2023 CBSE SQP]
- Q2.** Evaluate $\log 8 + \log 25 - \log 2$ (base 10), stating the laws you use. [PYQ 2024 CBSE SQP] **[2 marks]**
- Q3.** If today is Friday, what day of the week will it be 75 days from now? Show your modular reasoning. [PYQ 2022 Annual Pattern] **[2 marks]**
- Q4.** Given $\log 2 = 0.3010$, find $\log 5$ (base 10). [PYQ 2023 Annual Pattern] **[2 marks]**

Section B — Word problem with full working ($3 \times 4 = 12$ marks)**12 MARKS · 24 MIN**

- Q5.** Two grades of coffee costing Rs 240/kg and Rs 360/kg are mixed to obtain a blend costing Rs 300/kg. In what ratio should the two grades be mixed? Verify your answer with the weighted-average check. [PYQ 2023 CBSE SQP] **[3 marks]**
- Q6.** A boat goes 45 km downstream in 3 hours and the same distance upstream in 5 hours. Find the speed of the boat in still water and the speed of the stream. [PYQ 2022 Annual Pattern] **[3 marks]**
- Q7.** Pipe A fills a tank in 5 hours; pipe B (a leak) empties it in 20 hours. With both open, find the time to fill the tank. [PYQ 2023 CBSE SQP] **[3 marks]**
- Q8.** Express the recurring requirement as a modulo problem: find the smallest positive integer x such that $x \equiv 4 \pmod{9}$ and $30 < x < 40$. [PYQ 2024 Annual Pattern] **[3 marks]**

Section C — Long-answer, multi-step ($5 \times 2 = 10$ marks)**10 MARKS · 20 MIN**

- Q9.** A cask is full of 50 litres of pure milk. 10 litres are drawn out and replaced with water; the same operation is then repeated a second time. (a) Find the quantity of pure milk left after the two operations. (b) Find the ratio of milk to water in the final mixture. [PYQ 2024 CBSE SQP] **[5 marks]**
- Q10.** (a) Given $\log 2 = 0.3010$ and $\log 3 = 0.4771$, evaluate $\log 6$, $\log 12$ and $\log 1.5$ (base 10). (b) Convert the binary number 110110_2 to decimal, and convert your decimal answer back to binary to verify. [PYQ 2023 Annual Pattern] **[5 marks]**

Marking scheme & model answers — see companion Answer Key PDF · all PYQs traceable to actual CBSE papers · readyforboards.com · +91 70330 05444