Mathematics — Ganita Manjari

Chapter 10 Test 10

How Quantities Combine: Understanding Data

Class IX | 2026–27

Time Allowed: 45 Minutes | Maximum Marks: 25

General Instructions

1. All 13 questions are compulsory. Calculators are not allowed.
2. Select one correct option in Section A. Show working in Sections B–D.
3. Use given data. Assume additive volumes and no loss unless stated.

SECTION A

(5 questions × 1 mark = 5 marks)

1. To pool families' food-spending percentages, choose the weights:
(A) Number of family members
(B) Total expenditure of each family
(C) Number of food categories
(D) Equal weights always

2. Food spending is ₹4,500, or 30% of the budget. Find the total budget.
(A) ₹10,000 (B) ₹12,000
(C) ₹15,000 (D) ₹18,000

3. A component has ¼ of a group's weight; the group has 40%. Find its final weight.
(A) 10% (B) 25%
(C) 40% (D) 65%

4. An expense bar has parts ₹120, ₹80, ₹50. Find the ₹50 share.
(A) 25% (B) 50%
(C) 5% (D) 20%

5. To pool budgets, which quantities are added before finding a category's share?
(A) Category amounts and budget totals
(B) Only category percentages
(C) Only household counts
(D) Only percentage changes

SECTION B

(4 questions × 2 marks = 8 marks)

6. A family buys 2 kg of grain at ₹40/kg and 3 kg at ₹60/kg, paying ₹20 delivery. Find its average cost per kilogram including delivery.

7. Using the table, find food's share of all three months' spending. Explain why the simple mean of the three monthly percentages gives a different result.

Month	Food (₹)	All other (₹)
Jan	4000	6000
Feb	6000	14000
Mar	5000	5000

8. Two households save 30% and 10% of incomes ₹10,000 and ₹30,000 respectively. Find their combined saving percentage. Explain why 20% is incorrect.

9. A cleaner mixes 1 L of 20% concentrate at ₹60/L with 3 L of 40% concentrate at ₹30/L. Percentages are by volume. Find the blend's concentration and cost per litre.

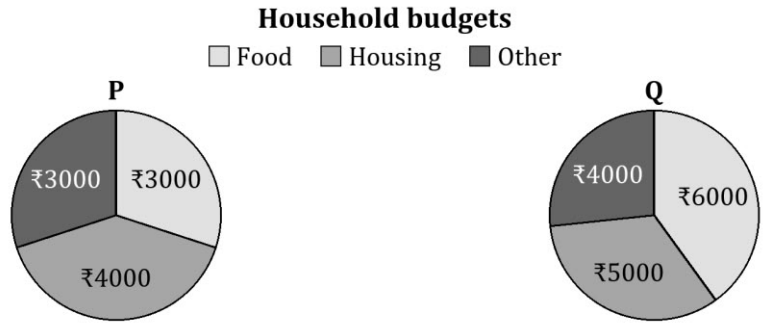
SECTION C

(3 questions × 3 marks = 9 marks)

10. Twelve households average ₹5,000 spending, with food 40% of their combined expenditure. Another 24 average ₹10,000, with food 25%. Find food's share of the combined expenditure of all 36 households.

11. A budget score combines essentials 60 and savings 80 with weights 3: 2. A student calculates $(0.6 \times 60 + 0.4 \times 80) \div 2$. Identify the error and show the correct score using both decimal and ratio weights.

12. Use the hypothetical monthly household spending in figure.



(i) Find Q's total spending.
(ii) Which household has the higher food share?
(iii) Find the combined housing percentage.

SECTION D

(1 application question × 3 marks = 3 marks)

13. A family spends ₹4,000 on food and ₹6,000 on other needs. It cuts these amounts by 25% and 10%. Is the overall cut 17.5%? Find the correct cut and new total.