# Mathematics — Ganita Manjari

## Chapter 10 Test 1

### 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.** Classes have 15 and 25 students. What weights should their means receive?
(A) 1 : 1 (B) 3 : 5
(C) 5 : 3 (D) 15 : 1

**2.** Two classes have mean score 68 each. What is their combined mean?
(A) 34 (B) 68
(C) 136 (D) Cannot be found

**3.** In a weighted mean, a weight can represent which of these?
(A) Only physical mass
(B) Only a percentage
(C) Group size or importance
(D) Only the largest value

**4.** Which chart uses a common baseline to compare genres across libraries?
(A) Clustered bar chart
(B) 100% stacked chart
(C) Pie chart
(D) Averages only

**5.** Equal masses of 12% and 28% salt mixtures are combined. Find the concentration.
(A) 16% (B) 18%
(C) 20% (D) 40%

## SECTION B

(4 questions × 2 marks = 8 marks)

**6.** A class of 10 students has mean score 45; another class of 20 has mean score 75. Find the combined mean.

**7.** Using the table, identify the category or categories contributing the most pages and find the total pages.

| Category | Books | Mean pages |
|---|---|---|
| Stories | 12 | 100 |
| Science | 8 | 150 |
| Reference | 5 | 240 |

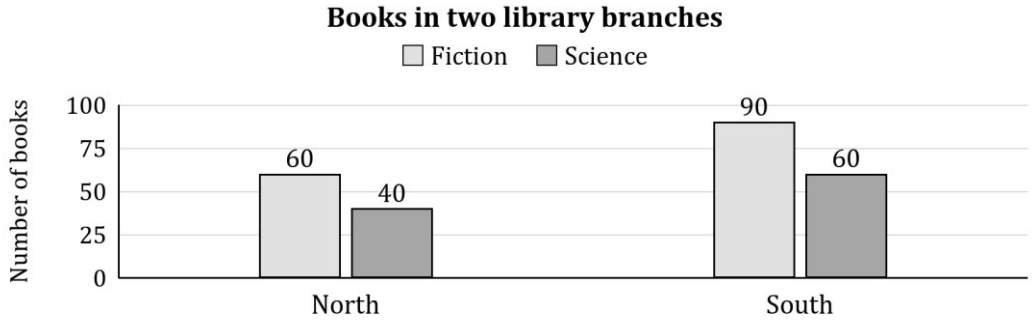
**8.** Forty students have a combined mean score of 70. Twenty-five belong to a class with mean 64. Find the mean of the remaining class.

**9.** A book review receives 5 points for content and 3 for presentation, both out of 5. With weights 3 : 1, find its weighted rating.

## SECTION C

(3 questions × 3 marks = 9 marks)

**10.** The chart in figure shows books in two library branches.




(i) Find the total books in South.
(ii) How many more fiction books does South have?
(iii) Would the corresponding 100% stacked bars be identical? Justify.

**11.** Two classes have means $a, b$ and sizes $m, n$. Derive their combined mean. Explain why averaging the two means works when $m = n$.

**12.** One class has 24 students and mean score 50. Another has mean 70. Their combined mean is 62. Find the second class size.

## SECTION D

(1 application question × 3 marks = 3 marks)

**13.** A student's quiz and project percentages are 60 and 90. Find the final percentage with weights 1 : 2 and then 2 : 1. Explain the difference.