Mathematics — Ganita Manjari

Chapter 10 Test 3

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. Equal-sized groups have means 12, 18 and 24. Find the combined mean.

(A) 12 (B) 18
(C) 24 (D) 54

2. Combining period means for daily sales requires which additional information?

(A) The highest day's sale
(B) Names of the periods
(C) Number of days in each
(D) Only the smallest mean

3. What does the whole bar represent in a stacked chart of trip counts?

(A) Only bus trips (B) Total trips
(C) Always 100 trips (D) Average trip length

4. Groups contain 4, 6 and 10 observations. What combined-mean denominator is used?

(A) 3 (B) 10
(C) 16 (D) 20

5. Comfort, safety and frequency have weights 2 : 3 : 5. What is safety’s weight percentage?

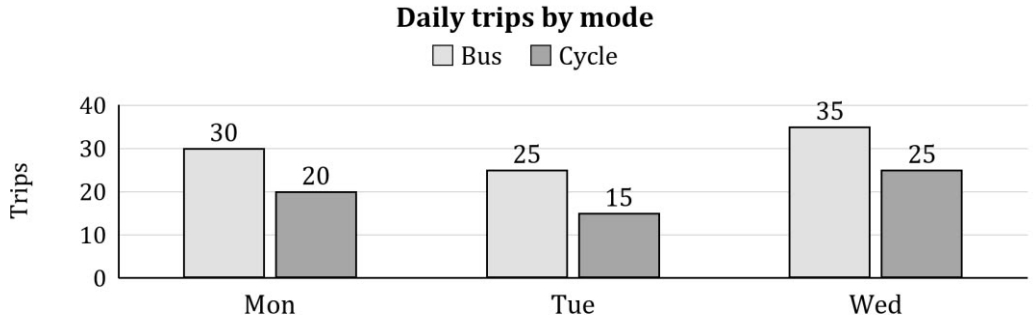
(A) 20% (B) 30%
(C) 50% (D) 60%

SECTION B

(4 questions × 2 marks = 8 marks)

6. Three groups contain 2, 3 and 5 observations, with means 10, 20 and 30 respectively. Find the combined mean.

7. Using the chart in figure, find the mean daily total of bus and cycle trips. Which day has the greatest total?



8. A cyclist averages 12 km per day over five weekdays and 5 km per day over the two weekend days. Find the average daily distance for the week.

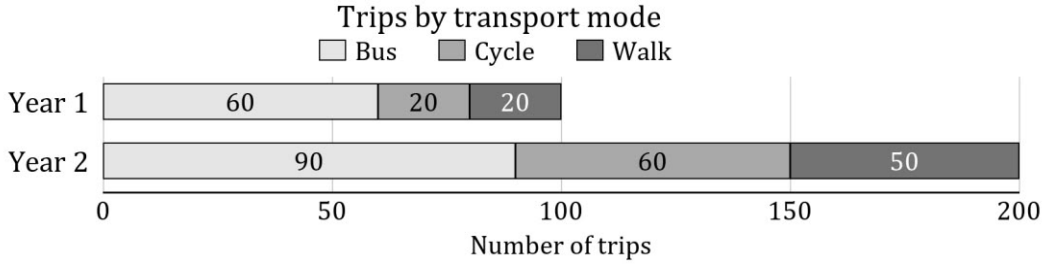
9. Can mixing positive quantities of 5% and 15% salt solutions produce a 3% salt solution? Explain without finding quantities.

SECTION C

(3 questions × 3 marks = 9 marks)

10. A learner averages 10 minutes of practice over two days and 25 minutes over eight days, then reports 17.5 minutes overall. Explain the error and find the correct mean.

11. The chart in figure records trips by three transport modes in two years.



(i) Find each year's total trips.
(ii) Find the increase in bus trips.
(iii) Did the bus share rise or fall? Calculate both shares.

12. Groups A, B and C have sizes 10, 20 and 30, and means 6, 9 and 12. Show that combining A and B first gives the same overall mean as combining all three directly.

SECTION D

(1 application question × 3 marks = 3 marks)

13. Bus route A takes 18, 20 and 22 minutes on three days; route B takes 10, 20 and 30. Compare their means and explain what the equal means conceal.