Organisation of Data

Standard difficulty · 20 questions · 40 marks · Time: 38 minutes

Name: _____ Date: _____ Score: ____ / 40

Write full answers in Sections B and C. Answers are on the last page — try every question first!

Section A — Choose the correct answer — 8 × 1 = 8 marks

1. Data in the form in which they were collected, not yet classified, are:
(a) a frequency distribution **(b)** secondary data
(c) grouped data **(d)** raw data

2. Classifying “families grouped by income ranges” is an example of:
(a) qualitative **(b)** spatial **(c)** quantitative **(d)** chronological

3. Which of these is a continuous variable?
(a) the number of students in a class **(b)** the number of cars sold in a day
(c) the number of children in a family **(d)** the height of students

4. What is the class mark of the class 65–95?
(a) 80 **(b)** 30 **(c)** 95 **(d)** 85

5. Marks of 15 students: 44, 67, 52, 60, 24, 66, 41, 25, 55, 54, 38, 38, 49, 29, 61. Using the exclusive method, how many fall in the class 60–70?
(a) 11 students **(b)** 5 students **(c)** 4 students **(d)** 6 students

6. A class has 3 tally bundles of five and 3 single strokes. What is its frequency?
(a) 19 **(b)** 15 **(c)** 18 **(d)** 6

7. For the data below, how many observations are less than 180?
Class: 80–100, 100–120, 120–140, 140–160, 160–180
Frequency: 17, 29, 5, 15, 18
(a) 84 **(b)** 18 **(c)** 66 **(d)** 102

8. Converted to the exclusive method, the inclusive class 190–199 becomes:
(a) 190–200 **(b)** 189.5–199.5 **(c)** 189–200 **(d)** 190.5–199.5

Section B — Short answer — 8 × 2 = 16 marks

9. What is the purpose of classifying data?

10. Is each variable continuous or discrete? (a) the number of students in a class (b) the temperature of a city

11. Name the kind of classification (chronological, spatial, qualitative or quantitative): (a) workers grouped as men and women (b) monthly rainfall of a city through a year

12. Explain each term: (a) bivariate distribution (b) classification

13. Marks of 20 students: 67, 70, 49, 70, 54, 47, 80, 84, 69, 83, 70, 85, 74, 56, 75, 65, 82, 59, 75, 81. Make a frequency distribution with the classes 40–50, 50–60, 60–70, 70–80, 80–90 (exclusive method).

14. Data run from 55 to 195. With classes of width 20 starting at 55, how many classes are needed, and what are the class marks of the first two?

15. A class has a frequency of 182 out of 280 observations. Express it as a percentage of the total frequency, and say why percentages help comparison.

16. Convert to the exclusive method: (a) 70–79 (b) 90–99. What is the width of each class?

Section C — Longer answers — 4 × 4 = 16 marks

17. Explain four kinds of classification with examples.

18. The marks of 20 students are 2, 9, 41, 38, 29, 33, 31, 23, 12, 16, 44, 31, 29, 32, 49, 31, 27, 35, 42, 2. (a) Make a frequency distribution with classes 0–10, 10–20, 20–30, 30–40, 40–50. (b) Write the cumulative frequencies. (c) Which class has the most students, and what share of the total is that?

19. Match each with its meaning: (a) class width (b) frequency (c) frequency array. Choose from: the difference between the upper and lower class limits; the number of observations in a class; a frequency distribution of a discrete variable.

20. Marks are grouped as 105–109, 110–114, 115–119, 120–124. (a) Is this the inclusive or exclusive method? (b) Convert the classes to the exclusive method. (c) Write the class marks. (d) What is the class width?

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Answer key

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Q	Answer	Working
1	**(d) raw data**	—
2	**(c) quantitative**	—
3	**(d) the height of students**	—
4	**(a) 80**	(65 + 95) ÷ 2 = 80
5	**(c) 4 students**	count the marks from 60 up to but not including 70
6	**(c) 18**	3 × 5 + 3 = 18
7	**(a) 84**	17 + 29 + 5 + 15 + 18 = 84
8	**(b) 189.5–199.5**	half the gap of 1 between classes: 190 − 0.5 and 199 + 0.5
9	**To arrange raw data into groups so that they are easy to understand, compare and analyse.**	—
10	**(a) discrete (b) continuous**	—
11	**(a) qualitative (b) chronological**	—
12	**(a) a frequency distribution of two variables together (b) arranging data into groups or classes**	—
13	**40–50: 2; 50–60: 3; 60–70: 3; 70–80: 6; 80–90: 6**	a mark equal to an upper limit goes in the next class
14	**7 classes; 65 and 85**	(195 − 55) ÷ 20 = 7
15	**65%; they compare classes and distributions of different sizes on one scale.**	182 ÷ 280 × 100
16	**(a) 69.5–79.5, width 10 (b) 89.5–99.5, width 10**	subtract 0.5 from the lower limit and add 0.5 to the upper
17	**Chronological (production by year), spatial (output by state), qualitative (workers by gender), quantitative (students by marks in classes).**	—
18	**(a) 0–10: 3; 10–20: 2; 20–30: 4; 30–40: 7; 40–50: 4 (b) 3, 5, 9, 16, 20 (c) 30–40, 35%**	exclusive method; add frequencies one by one
19	**(a) the difference between the upper and lower class limits (b) the number of observations in a class (c) a frequency distribution of a discrete variable**	—
20	**(a) inclusive (b) 104.5–109.5, 109.5–114.5, 114.5–119.5, 119.5–124.5 (c) 107,**	class mark = (lower + upper) ÷ 2

Q	Answer	Working
	112, 117, 122 (d) 5	