

ANSWER KEY & MARKING SCHEME · CBSE CLASS 11**Presentation of Data**

Economics · Chapter 4 · Use this with the Board Paper · Companion to Quick Drill

HOW TO USE

Attempt the Board Paper first (closed-book, full time). Then come here. For 2-mark+ questions, compare your answer to the model. For 3-4 mark questions, also consult the **Topper Templates** below — these show the exact step-by-step structure that scores full marks per CBSE marking-scheme conventions.

MODEL ANSWERS · BOARD PAPER**Section A — Very Short Answer (1 mark x 5)****Q1. Name the three forms of presentation of data. [1 mark]****Ans:** Textual, Tabular, and Diagrammatic & Graphic presentation.**Q2. In a table, what are the headings of the columns called? [1 mark]****Ans:** The caption (column headings); the headings of the rows are the stub.**Q3. Write the formula for the angle of a slice in a pie diagram. [1 mark]****Ans:** Angle of a slice = (value of the component / total of all values) x 360 degrees.**Q4. State one difference between a histogram and a bar diagram. [1 mark]****Ans:** A histogram has no gaps between bars (continuous data) while a bar diagram has gaps between bars. [Any one valid difference accepted.]**Q5. How is the median located using ogives? [1 mark]****Ans:** By drawing the less-than and more-than ogives on the same graph; the x-coordinate of their point of intersection is the median.**Section B — Short Answer I (3 marks x 3)****Q6. Name and explain any three parts of a statistical table. [3 marks]****Ans:** (1) TITLE — the heading at the top describing the whole table (what, where, when). (2) STUB — the headings of the ROWS, on the left, describing each row. (3) CAPTION — the headings of the COLUMNS, across the top. [Body — the figures; foot-note/source — also acceptable.] Stub = rows, Caption = columns.**Q7. Distinguish between a histogram and a bar diagram. [3 marks]****Ans:** (1) DATA: a bar diagram shows discrete/categorical data; a histogram shows a continuous frequency distribution. (2) GAPS: bar diagram bars have equal gaps; histogram bars touch (no gaps). (3) VALUE: in a bar diagram only the height shows the value and bars can be reordered; in a histogram the area represents the frequency and bars cannot be reordered.**Q8. Explain the four types of classification used in tabulation, with one example each. [3 marks]****Ans:** (1) QUALITATIVE — by attribute, e.g., classifying people by gender or literacy. (2) QUANTITATIVE — by a measurable variable, e.g., workers by income. (3) TEMPORAL — by time, e.g., population in 1991, 2001, 2011. (4) SPATIAL — by place, e.g., wheat production by state. [Full marks for clearly naming and illustrating all four.]**Section C — Short Answer II / Long Answer (4 marks x 4)****Q9. The monthly expenditure of a family is: Food Rs 6000, Rent Rs 4000, Education Rs 3000, Transport Rs 2000, Miscellaneous Rs 3000. Calculate the angles for a pie diagram and verify they sum to 360 degrees. [4 marks]****Ans:** Total = 6000+4000+3000+2000+3000 = 18000. Angle = (value/18000) x 360. Food = (6000/18000)x360 = 120 degrees; Rent = (4000/18000)x360 = 80 degrees; Education = (3000/18000)x360 = 60 degrees; Transport = (2000/18000)x360 = 40 degrees; Miscellaneous = (3000/18000)x360 = 60 degrees. CHECK: 120+80+60+40+60 = 360 degrees. (Percentages: 33.3, 22.2, 16.7, 11.1, 16.7 = 100.)

Q10. Explain the four types of bar diagrams, stating when each is used. [4 marks]

Ans: (1) SIMPLE bar diagram — bars of equal width, proportional height, for ONE variable, e.g., sales of five years. (2) MULTIPLE bar diagram — two or more bars SIDE BY SIDE per category, to COMPARE components, e.g., imports vs exports. (3) COMPONENT (sub-divided) bar diagram — parts STACKED within one bar so total height = grand total, to show a total and its break-up, e.g., a family budget. (4) PERCENTAGE bar diagram — component bars all drawn to 100% height (percentage = value/total x 100), to compare the composition of different totals.

Q11. Explain the histogram, frequency polygon, frequency curve and ogive as graphs of a frequency distribution. [4 marks]

Ans: (1) HISTOGRAM — rectangles over class intervals with no gaps; area represents frequency (continuous data). (2) FREQUENCY POLYGON — frequency plotted against class mid-points and joined by straight lines, closed to the x-axis at both ends. (3) FREQUENCY CURVE — the smoothed, free-hand version of the polygon showing the shape of the distribution. (4) OGIVE — graph of cumulative frequency: less-than ogive (vs upper limit, rising) and more-than ogive (vs lower limit, falling); their intersection gives the median.

Q12. From the distribution: classes 0-10, 10-20, 20-30, 30-40, 40-50 with frequencies 4, 6, 10, 7, 3, prepare the less-than and more-than cumulative frequencies and explain how the median is found from the ogives. [4 marks]

Ans: $N = 4+6+10+7+3 = 30$. LESS-THAN cum. freq. (vs upper limit): $<10 = 4$, $<20 = 10$, $<30 = 20$, $<40 = 27$, $<50 = 30$. MORE-THAN cum. freq. (vs lower limit): $>0 = 30$, $>10 = 26$, $>20 = 20$, $>30 = 10$, $>40 = 3$. Plot the less-than ogive (rising) and the more-than ogive (falling) on the same graph; the x-coordinate of their point of intersection is the MEDIAN (here it lies in the 20-30 class, around $N/2 = 15$ th value).

★ TOPPER ANSWER TEMPLATES

3 TEMPLATES · MEMORISE THE FORMAT

★ TOPPER TEMPLATE — 4-6 mark: 'Calculate the angles for a pie diagram from the given values.'

Most school papers + SQP

Step 1
[1 mark] **State the formula + find the total**

The angle of each slice = (value of the component / total of all values) x 360 degrees. First add all the component values to get the TOTAL, since every angle is a fraction of 360 degrees.

Step 2
[2 marks] **Compute each angle in a table**

Make a working table with columns: Item | Value | Angle = (value/total)x360. Compute each angle, e.g., if Food = 90 out of total 360, angle = $(90/360) \times 360 = 90$ degrees. Show the calculation for EVERY component, keeping figures aligned.

Step 3
[1 mark] **Check the sum = 360 + draw**

ADD all the angles and confirm they total exactly 360 degrees (a built-in accuracy check). Then draw a circle, mark the slices in order with a protractor starting from 12 o'clock clockwise, and label each slice with its item name and value/percentage.

COMMON LOSS OF MARKS:

- Using the percentage as the angle directly instead of value/total x 360.
- Angles not summing to 360 (arithmetic slip) and not checking.
- Forgetting to draw/label the circle when the question says 'represent by a pie diagram'.

★ TOPPER TEMPLATE — 3-4 mark: 'Name and explain the parts of a statistical table.'

Annual

Step 1
[1 mark] **Title + head-note**

TITLE: the heading at the very top describing the contents of the whole table (what, where, when). HEAD-NOTE: a note below the title giving the unit of measurement (e.g., 'in lakh rupees').

Step 2
[1 mark] **Stub + caption**

STUB: the headings of the ROWS, down the left-hand column, describing what each row contains. CAPTION: the headings of the COLUMNS, across the top, describing what each column contains. Stub = rows, Caption = columns.

Step 3
[1 mark] **Body + foot-note/ source**

BODY: the main part containing the actual numerical figures, where each cell is fixed by its row and column. FOOT-NOTE: clarifies anything special; SOURCE: states where the data came from, given below the table.

COMMON LOSS OF MARKS:

- Swapping stub (rows) and caption (columns).
- Listing parts as one-word labels with no description.
- Omitting body or source for a full-marks 'all parts' question.

★ **TOPPER TEMPLATE — 3-mark: 'Distinguish between a histogram and a bar diagram.'**

Frequent

Step 1 [1 mark]	Type of data	A BAR DIAGRAM represents DISCRETE or categorical data (e.g., production of different states). A HISTOGRAM represents a CONTINUOUS frequency distribution arranged in class intervals.
Step 2 [1 mark]	Gaps between bars	In a bar diagram the bars are SEPARATED by EQUAL GAPS, because the categories are distinct. In a histogram the bars TOUCH each other with NO GAPS, because the class intervals are continuous.
Step 3 [1 mark]	What represents the value	In a bar diagram only the HEIGHT (length) of the bar shows the value, and bars can be reordered. In a histogram the AREA of each bar (width x height) represents the frequency, and the bars cannot be reordered.

COMMON LOSS OF MARKS:

- Giving only the 'gaps vs no gaps' point for a 3-mark answer.
- Saying area matters in a bar diagram (only height does).
- Not naming the data type (discrete vs continuous).

MARKING SCHEME — GENERAL NOTES

- Pie numerical: 1 mark for total + formula, 2 marks for correct angles of all components, 1 mark for the 360 check (and drawing/labelling if asked). Wrong-but-consistent angles get partial credit only if the formula is correct.
- Stub-vs-caption must be correctly assigned (stub = rows, caption = columns) for the table-parts mark.
- Histogram-vs-bar: each distinct difference (data type / gaps / area-vs-height) with explanation earns its mark.
- Ogive question: correct less-than and more-than cumulative columns earn marks; the median must be identified as the x-value at the ogives' intersection.
- Accept any valid example in place of those given, provided it correctly illustrates the concept.