Unit: Elementary Educational Statistics

📙 **Solved Textual Questions & Answers**

A. 1-Mark (Very Short Answer)

1. **What is Statistics?**
   → **Statistics is a branch of mathematics that deals with the collection, classification, presentation, analysis, and interpretation of numerical data.**

2. **Who is called the father of Statistics?**
   → **Sir Ronald A. Fisher.**

3. **What is the purpose of educational statistics?**
   → **To aid in educational planning, administration, research, and evaluation by providing quantitative data.**

4. **Write one method of data collection.**
   → **Observation method.**

5. **What is primary data?**
   → **Data collected directly from the source by the investigator for a specific purpose.**

B. Short Answer Questions (2–3 Marks)

1. **Define classification and tabulation.**
   → **Classification is organizing data into groups based on shared characteristics. Tabulation is presenting classified data in a table for clarity.**

2. **What are the two types of data? Explain with examples.**
   → **Primary data (e.g., data from field surveys) and secondary data (e.g., government reports).**

3. Mention two features of statistics in education.
   a) Helps in planning and decision-making.
   b) Makes complex educational data understandable.

4. What is the difference between classification and tabulation?
   → Classification groups the data; tabulation displays the classified data in table form.

5. Write two limitations of statistics.
   a) Cannot be applied to qualitative data directly.
   b) Results can be misleading if data is incorrect or incomplete.

C. Long Answer Questions (4–6 Marks)

1. Explain the meaning, nature, and scope of educational statistics.
   → Educational statistics is the application of statistical methods to education. It helps collect, classify, and analyze data related to student performance, resource utilization, etc. Its scope includes curriculum evaluation, performance analysis, and institutional planning.

2. What are the uses of statistics in education?
   → It supports decision-making, educational research, measurement and evaluation of students, teacher performance, and resource planning.

3. Discuss the methods of data collection.
   → Common methods include observation, interviews, questionnaires, and surveys. Each method has strengths depending on the context of the study.

4. What is the difference between primary and secondary data?
   → Primary data is original and collected first-hand. Secondary data is already collected by others for a different purpose.

5. **Mention five important functions of statistics in education.**
   a) Helps in prediction.
   b) Aids comparison.
   c) Ensures objectivity.
   d) Supports planning and policy-making.
   e) Facilitates research.

✅ **Additional Short & Long Questions (with Model Answers)**

Short Answer (2–3 Marks)

1. **Define educational statistics.**
   → Educational statistics is the branch that applies statistical techniques to collect and analyze data in the field of education.

2. **What is meant by tabulation of data?**
   → It is the systematic arrangement of data in rows and columns.

3. **List two sources of secondary data.**
   → Census reports and educational journals.

4. **Mention two qualities of good statistical data.**
   → Accuracy and reliability.

5. **What is raw data?**
   → Data collected in its original form without classification or tabulation.

6. **What is quantitative data?**
   → Data that can be measured and expressed numerically.

7. **Differentiate between qualitative and quantitative data.**
   → Qualitative data describes attributes; quantitative data uses numbers.

8. **Name two graphical methods of data presentation.**
   → **Bar graph and pie chart.**

9. **What is a frequency distribution?**
   → **It is a tabular representation showing the number of times each value occurs.**

10. **State two objectives of using statistics in education.**
    → **To improve planning and to evaluate effectiveness of teaching-learning.**

Long Answer (4–6 Marks)

11. **Discuss the importance of classification and tabulation in statistics.**
    → **Classification simplifies data by grouping, while tabulation presents the data neatly in tables, making analysis easier.**

12. **Explain the role of statistics in educational evaluation.**
    → **Statistics enables objective measurement of student performance, program outcomes, and helps in interpreting results accurately.**

13. **Describe the different methods of presenting statistical data.**
    → **Methods include tabular, diagrammatic (bar graphs, pie charts), and graphical (histograms, frequency polygons).**

14. **Explain the difference between a bar graph and a histogram.**
    → **A bar graph has gaps between bars and is used for categorical data, while a histogram has no gaps and is for continuous data.**

15. **State the characteristics of a good table.**
    → **Clear title, proper labeling, source of data, neat arrangement, and appropriate units.**

16.   Discuss how educational statistics help in policy formulation.
→ Provides empirical data to analyze needs, measure gaps, and allocate resources effectively.

17.   What precautions should be taken while interpreting statistical data?
→ Ensure data accuracy, context understanding, avoid bias, and consider limitations.

18.   Explain the concept and use of averages in educational statistics.
→ Averages (mean, median, mode) summarize data and help compare group performance.

19.   Mention types of diagrams used in statistics.
→ Line graph, bar diagram, pie chart, histogram, frequency polygon.

20.   What is the role of statistics in educational research?
→ It helps formulate hypotheses, test them, draw conclusions, and ensure validity of findings.