

- 1.** Tell whether each of the following is a variable or a constant:
- Scores obtained on a final examination by members of a statistics class.
  - The cost of clothing purchased each year by secretaries.
  - The number of days in the month of June.
  - The time it takes to do grocery shopping.
  - The age at which one may become a voter in Pakistan.

**2.** A wind blew for 40 days. Its wind speeds, in knots, were recorded as follows: 15, 22, 14, 12, 21, 34, 19, 11, 13, 10, 16, 4, 23, 8, 12, 18, 24, 17, 14, 3, 10, 12, 9, 15, 20, 5, 19, 13, 17, 11, 16, 19, 24, 12, 7, 14, 17, 10, 14, 23, 3, 5.

- Are these discrete or continuous variables?
  - Choose an appropriate class interval and present these data in a frequency distribution table.
  - Which class interval occurs most frequently?
  - Set up a frequency distribution table including columns for the relative frequency and percentage frequency of the data.
  - What conclusions can be drawn from the tables? Explain.
- 3.** When a machine in a factory is inoperative because of breakdowns or other difficulties during working hours, the condition is called "downtime." An efficiency expert measures durations of downtimes in minutes. Following is the frequency distribution of 200 downtimes which occurred in a factory during a week.

Time (minutes)	Number of downtimes
10-19	15
20-29	62
30-39	67
40-49	42
50-59	10
60-69	4

Convert the distribution into a cumulative "less than" distribution and draw its ogive.

- 4.** The following is a frequency distribution of the times required to complete the final examination for a class of 33 students in an introductory statistics course. The figures are in minutes.

Time	Number of Students
81-85	1
86-90	1
91-95	2
96-100	3
101-105	3
106-110	7
111-115	10
116-120	6

For this frequency distribution, determine:

- The class width or class interval,

- b. The boundaries of the third class,
  - c. The lower boundary of the first class,
  - d. The upper boundary of the last class,
  - e. The lower limit of the second class,
  - f. The lower limit of the fourth class,
  - g. The number of students who required 100 minute or less to complete the exam,
  - h. The percentage of students who took more than 110 minutes to finish the exam,
  - i. The fraction of students who required anywhere from 86 to 105 minutes to complete the test.
- 5.** The following data show the number of hours worked by 200 statistics students.

Number of Hours	Frequency
0 - 9	40
10 - 19	50
20 - 29	70
30 - 39	40

- a. The class width for this distribution is \_\_\_\_\_.
  - b. The number of students working 19 hours or less is \_\_\_\_\_.
  - c. The relative frequency of students working 9 hours or less is \_\_\_\_\_.
  - d. The cumulative relative frequency for the class of 10 – 19 is \_.
- 6.** An analysis of the 40 grades on a college transcript, where the possible grades were A, B, C, D, and F, revealed that the student had attained the following
- B F A C D B C C C B  
 B C B A C D C B D B  
 C B A D C B C C B C  
 C C B C C A C B C B

Construct a table showing the frequencies corresponding to the grades achieved by the student.

- 7.** **Q.1, Q.2, Q.3, Q.4, Q.5, Q.6 and Q.8**  
**Page 64 (Introduction to Statistics, 3<sup>rd</sup> Edition, Walpole)**

**MULTIPLE CHOICE QUESTIONS**

In the following multiple choice questions, circle the correct answer.

- 1.** A numerical value used as a summary measure for a sample, such as sample mean, is known as a
- a. population parameter
  - b. sample parameter
  - c. sample statistic
  - d. population mean
- 2.** The sum of the percent frequencies for all classes will always equal
- a. one

- b. the number of classes
- c. the number of items in the study
- d. 100

**3.** In a sample of 800 students in a university, 160, or 20%, are Business majors. Based on the above information, the school's paper reported that "20% of all the students at the university are Business majors." This report is an example of

- a. a sample
- b. a population
- c. statistical inference
- d. descriptive statistics

**4.** A statistics professor asked students in a class their ages. On the basis of this information, the professor states that the average age of all the students in the university is 21 years. This is an example of

- a. census
- b. descriptive statistics
- c. an experiment
- d. statistical inference

**5.** A tabular summary of a set of data showing the fraction of the total number of items in several classes is a

- a. frequency distribution
- b. relative frequency distribution
- c. frequency
- d. cumulative frequency distribution

**6.** Sum of dots when two dice are rolled is

- a. discrete variable
- b. continuous variable
- c. constant
- d. qualitative variable

**7.** The weights of students in a college/school is a

- a. Discrete Variable

- b. Continuous Variable
- c. Qualitative Variable
- d. None of these

**8.** The number of accidents in a city during 2010 is

- a. Discrete variable
- b. Continuous variable
- c. Qualitative variable
- d. Constant

**9.** Which of these represent qualitative data

- a. Height of a student
- b. Liking or disliking of (500) persons of a product
- c. Income of a government servant in a city
- d. Yield from a wheat plot

**10.** Life of a T.V picture tube is a

- a. Discrete variable
- b. Continuous variable
- c. Qualitative variable

d. Constant

**11.** The first hand and unorganized form of data is called

a. Secondary data

b. Organized data

c. Primary data

d. None of these

**12.** The data which have already been collected by someone are called

a. Raw data

b. Array data

c. Secondary data

d. Fictitious data

**13.** Census reports used as a source of data is a

a. Primary source

b. secondary source

c. Organized data

d. none

**14.** The grouped data is also called a

- a. Raw data
- b. Primary data
- c. Secondary data
- d. Qualitative data

**15.** Primary data and \_\_\_\_\_ data are same

- a. Grouped
- b. Secondary data
- c. Ungrouped
- d. None of these

**16.** Questionnaire survey method is used to collect

- a. Secondary data
- b. Qualitative variable
- c. Primary data
- d. None of these

**17.** Data collected by NADRA to issue computerized identity cards (CICs) are

- a. Unofficial data
- b. Qualitative data
- c. Secondary data

d. Primary data

**18.** Population census is conducted through

a. Sample survey

b. Accounting

c. Investigation

d. Complete enumeration

**19.** A parameter is a measure which is computed from

a. Population data

b. Sample data

c. Test statistics

d. None of these

**20.** A constant variable can take values

a. Zero

b. Fixed

c. Not fixed

d. nothing