Introductory Statistics (IS) / Elementary Statistics (ES): Chapter 1 Test: Form A

Name_____

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

Provide an appropriate response.

1) The table below shows the average income by age group for the residents of one town in the year 1998. The average incomes for each age group are estimates based on a sample of size 100 from each group. 1) _____

Age group	Average income
18–24	$17,180
25–39	$26,661
40–54	$32,471
55–70	$25,960
Over 70	$18,241

Classify the study as either descriptive or inferential.
A) Descriptive B) Inferential

Answer the question.

2) An employee at the local ice cream parlor asks three customers if they like chocolate ice cream. Identify the sample and population. 2) _____
A) Sample: all customers; population: the 3 selected customers
B) Sample: the 3 selected customers; population: the customers who like chocolate ice cream
C) Sample: the 3 selected customers; population: all customers
D) Sample: the customers who like chocolate ice cream; population: all customers

Identify the study as an observational study or a designed experiment.

3) In a clinical trial, 780 participants suffering from high blood pressure were randomly assigned to one of three groups. Over a one-month period, the first group received the experimental drug, the second group received a placebo, and the third group received no treatment. The diastolic blood pressure of each participant was measured at the beginning and at the end of the period and the change in blood pressure was recorded. The average change in blood pressure was calculated for each of the three groups and the three averages were compared. 3) _____
A) Designed experiment B) Observational study

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Answer Key
Testname: CHAPTER 1 FORM A

1) B
2) C
3) A
4) To make the study a designed experiment, a researcher could start with a randomly chosen group of women who had been diagnosed with breast cancer in 1992. The women would then be divided into two groups: Caucasian women and African American women. The two groups of women would be required to receive the exact same cancer treatment over the next five years; then the survival rates would be recorded. This designed experiment may be infeasible because some of the women may not wish to receive the treatment provided versus a treatment that could be more appropriate to their case (radiation, chemotherapy, surgery) or any cancer treatment whatsoever. Controlling the treatment method may not be sufficient to establish whether there is a causation between race and survival rate. Other factors may affect the survival statistics, such as economic status, age, other health factors, etc.
5) B
6) A
7) 691, 3863, 3034, 978, 4584, 99, 362, 245, 1788, 4947, 471, 1562, 684, 2598
8) Answers will vary. Possible answer: The lecturer stands at the door of his classroom and tells the first 25 students to arrive to class that they are invited to a special bonus session of class to be held at some upcoming date. This is unlikely to yield a representative sample as the students who show up to class first could possibly be the ones who are more conscientious and hard-working. Or, the students may refuse to volunteer for an extra class period, so the lecturer's sample would be too small to be a representative sample.
9) B
10) i) This is a poll taken by calling randomly selected U.S. adults. Thus, the sampling design appears to be simple random sampling, although it is possible that a more complex, multi-stage design was used to ensure that various political, educational, or other types of groups were proportionately represented in the sample.
ii) The approximate sample size for the second question was 89% of 1010, or 899.