Multiple choice: Select the best answer for Exercises 91 to 98.

91. Can changing diet reduce high blood pressure? Vegetarian diets and low-salt diets are both promising. Men with high blood pressure are assigned at random to four diets: (1) normal diet with unrestricted salt; (2) vegetarian with unrestricted salt; (3) normal with restricted salt; and (4) vegetarian with restricted salt. This experiment has

(a) one factor, the type of diet.

(b) two factors, high blood pressure and type of diet.

(c) two factors, normal/vegetarian diet and unrestricted/restricted salt.

(d) three factors, men, high blood pressure, and type of diet.

(e) four factors, the four diets being compared.

92. In the experiment of the previous exercise, the 240 subjects are labeled 001 to 240. Software randomly assigns 60 subjects to each of the four diets. This is

(a) a completely randomized design.

(b) a randomized block design.

(c) a matched pairs design.

(d) an observational study.

(e) an SRS.

93. The Community Intervention Trial for Smoking Cessation asked whether a community-wide advertising campaign would reduce smoking. The researchers located 11 pairs of communities, each pair similar in location, size, economic status, and so on. One community in each pair participated in the advertising campaign and the other did not. This is

(a) an observational study.

(b) a matched pairs experiment.

(c) a completely randomized experiment.

(d) a randomized block design, but not matched pairs.

(e) a stratified random sample.

94. The drug manufacturer Merck recently stopped testing a promising new drug to treat depression. It turned out that in a randomized, double-blind trial, a dummy pill did almost as well as the new drug. The fact that many people respond to a dummy treatment is called

(a) confounding.

(b) nonresponse.

(c) comparison.

(d) the placebo effect.

(e) bias.

95. Corn variety 1 yielded 140 bushels per acre last year at a research farm. This year, corn variety 2, planted in the same location, yielded only 110 bushels per acre. Unfortunately, we don't know whether the difference is due to the superiority of variety 1 or to the effect of this year's drought. This is an example of

(a) bias.

(b) matched pairs design.

(c) confounding.

(d) the placebo effect.

(e) replication.

96. A report in a medical journal notes that the risk of developing Alzheimer's disease among subjects who (voluntarily) regularly took the anti-inflammatory drug ibuprofen (the active ingredient in Advil) was about half the risk among those who did not. Is this good evidence that ibuprofen is effective in preventing Alzheimer's disease?

(a) Yes, because the study was a randomized, comparative experiment.

(b) No, because the effect of ibuprofen is confounded with the placebo effect.

(c) Yes, because the results were published in a reputable professional journal.

(d) No, because this is an observational study. An experiment would be needed to confirm (or not confirm) the observed effect.

(e) Yes, because a 50% reduction can't happen just by chance.

97. A double-blind experiment was conducted to evaluate the effectiveness of the Salk polio vaccine. The purpose of keeping the diagnosing physicians unaware of the treatment status of the experimental subjects was to

(a) eliminate grounds for malpractice suits.

(b) ensure that subjects were randomly assigned to treatments.

(c) eliminate a possible source of bias.

(d) make sure nobody is harmed.

(e) avoid the placebo effect.

98. Two essential features of all statistically designed experiments are

(a) compare several treatments; use the double-blind method.

(b) compare several treatments; use chance to assign subjects to treatments.

(c) always have a placebo group; use the double-blind method.

(d) use a block design; use chance to assign subjects to treatments.

(e) use enough subjects; always have a control group.