Choose the answer that best completes the statement or answers the question. Place your answer in the space provided.

**Determine whether the report describes a prospective observational study, a retrospective observational study, or an experiment.**

________________________ 1. 780 patients suffering from high blood pressure were randomly assigned to one of three groups. Over a four-month period, the first group received an 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 biggest decrease in blood pressure was for those who received the drug.

________________________ 2. Among a group of married women who were tracked for ten years, those who worked full time were more likely to divorce than those who did not work full time.

**Multiple Choice:**

_____ 3. Among a group of married women who were tracked for ten years, those who worked full time were more likely to divorce than those who did not work full time. Identify the subjects studied in this observational study.

A divorced women who work full time
B divorced women
C married women who work full time or not
D women who work full time
E married women who work full time

_____ 4. An education researcher was interested in examining the effect of the teaching method and the teacher on the reading level of students with learning disabilities. 257 students with learning disabilities participated in an experiment. There are four different teachers (Julie, Felix, Sarah, and Harry) and three different teaching methods (A, B, and C). Students are randomly assigned to a teaching method and a teacher. Those who studied with Sarah using method B achieved the highest scores on a reading test. Identify the subjects studied in this experiment.

A teachers
B students with learning disabilities
C teaching methods
D scores on reading tests
E students who studied with Sarah using method B

_____ 5. A researcher wants to compare the effect of a new type of shampoo on hair condition. The researcher believes that men and women may react to the shampoo differently. Additionally, the researcher believes that the shampoo will react differently on hair that is dyed. The subjects are split into four groups: men who dye their hair; men who do not dye their hair; women who dye their hair; women who do not dye their hair. Subjects in each group are randomly assigned to the new shampoo and the old shampoo. This experiment...

A has two factors (shampoo type and whether hair is dyed) blocked by gender.
B has three factors (shampoo type, gender, whether hair is dyed).
C is completely randomized.
D has two factors (gender and whether hair is dyed) blocked by shampoo type.
E has one factor (shampoo type), blocked by gender and whether hair is dyed.
For each of the following complete parts a – e.

<table>
<thead>
<tr>
<th>If observational:</th>
<th>If experimental:</th>
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<tbody>
<tr>
<td>a. Identify whether it was an observational study or an experiment.</td>
<td>b. Identify the subjects studied</td>
</tr>
<tr>
<td>b. Was it retrospective or prospective?</td>
<td>c. State the factors and levels for each. Then state the total number of treatments.</td>
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<tr>
<td>c. Identify the subjects studied and how they were selected.</td>
<td>d. Describe the response variable.</td>
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<tr>
<td>d. Describe the parameter of interest.</td>
<td>e. State the nature and scope of the conclusion the study can reach.</td>
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6. The leg muscles of men aged 60 to 75 were 50% to 80% stronger after they participated in a 16-week, high-intensity resistance-training program twice a week. (*Journal of Gerontology* 55A [2000]: B336)

7. Among a group of disabled women aged 65 and older who were tracked for several years, those who had a vitamin B<sub>12</sub> deficiency were twice as likely to suffer severe depression as those who did not. (*American Journal of Psychology* 157 [2000]: 715)

8. After menopause many women take supplemental estrogen. There is some concern that if these women also drink alcohol, their estrogen levels will rise too high. Twelve volunteers who were receiving supplemental estrogen were randomly divided into two groups, as were 12 other volunteers not on estrogen. In each case, one group drank an alcoholic beverage, the other a non-alcoholic beverage. An hour later everyone’s estrogen level was checked. Only those on supplemental estrogen who drank alcohol showed a marked increase.

9. Researchers have linked an increase in the incidence of breast cancer in Italy to dioxin released by an industrial accident in 1976. The study identified 981 women who lived near the site of the industrial explosion and were under age 40 at the time. Fifteen of the women had developed breast cancer at an unusually young average age of 45. Medical records showed that these women had heightened concentrations of dioxin in their blood, and that each 10-fold increase in dioxin level was associated with a doubling of the risk of breast cancer. (*Science News*, Aug. 3, 2002)