Graphing Calculators and Green Packets allowed

Part II: **Free Response** Please write *clear* solutions. Support all your statements.

1. Does ginkgo improve memory? The law allows marketers of herbs and other natural substances to make health claims that are not supported by evidence. Brands of ginkgo extract claim to "improve memory and concentration." A randomized comparative experiment found no statistically significant evidence for such effects. The subjects were 230 healthy volunteers over 60 years old. They were randomly assigned to ginkgo or a placebo pill (looks and tastes the same). All the subjects took a battery of tests for learning and memory before treatment started and again after six weeks.

    a. Was this study a double-blind experiment? Explain what this means, and your reasoning for your decision. **[3pts]**

    b. Comment briefly on the extent to which results of this study can be generalized to some larger population, and the extent to which cause and effect has been established. **[2pts]**

    c. Explain why it is advantageous to use 230 volunteers in this study, rather than, say, 30. **[2pts]**

    d. Using the random digits below (starting at line 103), choose the first four members of the ginkgo group. Explain your method clearly. **[4pts]**

103	45467	71709	77558	00095	32863	29485	82226	90056
104	52711	38889	93074	60227	40011	85848	48767	52573
105	95592	94007	69971	91481	60779	53791	17297	59335
106	68417	35013	15529	72765	85089	57067	50211	47487

Graphing Calculators and Green Packets allowed

11. In a 1995 Corporation for Public Broadcasting poll of TV viewership, one question was "A recent study by a psychology professor at a leading university concluded that the amount of violence children see on television has an effect on their likelihood of being aggressive and committing crimes. From what you have seen or heard about this subject, do you agree strongly with that conclusion, agree somewhat, or disagree strongly?" Is this question appropriate, or is it flawed in some way? Explain your reasoning for your decision. **[3pts]**

12. The Student Council has been asked to determine the attitude of the students at your school toward a new dress code policy. Joe, a member of the council who is taking AP Statistics, decides to send a questionnaire to an SRS of 100 students. Eighty-seven students return the completed questionnaire. Joe decides to randomly select 13 additional students to serve as replacement subjects to complete the sample of 100. Is Joe's sampling method appropriate? Briefly comment on the merits of this method or its pitfalls. **[3pts]**

13. Here's a quick and easy way to randomize. You have 100 subjects, 50 women and 50 men. Toss a coin. If it's heads, assign the men to the treatment and the women to the control group. If the coin comes up tails, assign the women to treatment and the men to control. This gives every individual subject a 50-50 chance of being assigned to treatment or control. Is this a reasonable way to randomly assign subjects to treatment groups? Explain your reasoning. **[2pts]**