FIRST MIDTERM EXAM

Name _____

ID number _____

Notes:

1. This is an open book and open notes exam.

2. You must show your work and explain your answer in order to receive credit.

3. The exam carries 100 points.

4. The points assigned to each problem are indicated at the beginning of that problem. Use them to plan your time. You have 60 minites to finish.

5. The exam has 6 problems.

1. [15 pts] The exam scores for the students in an introductory statistics class are as follows.

88	82	89	70	85
63	100	86	67	39
90	96	76	34	81
64	75	84	89	96

Find the "5-number summary" for the above data set.

2. [15 pts] Find the probability that the circuit shown on the graph is working.

3.[20 pts] A 1989 Gallup pool asked 1000 adults and 500 teen-agers the question: "What is the nation's top problem?" The pie charts shown below were used to summarize the results of the survey. Assume a person who participated in the survey is selected at random.

(a) Determine the probability that the person selected said that drug abuse is the nation's top problem.

(b) Find the probability that the person selected is a teen-ager, given that the person selected said that drug abuse is the nation's top problem.

4. [20] Studies show that 40% of U.S. families use physical aggression to resolve the conflict. Suppose 20 families are selected at random. Find the probability that the number, X, that use physical aggression is

(a) Exactly 9;

(b) Between 7 and 10 inclusive;

Use Table I (Appendix A).

(c) Find the expectation (μ) and the variance (σ^2), of the random variable X.

5. [15] A jar contains two black and two white balls. Suppose that the balls have been thoroughly mixed and two are randomly selected from the jar.

(a) List all elementary outcomes for the experiment and assign appropriate probabilities to each. Make sure that the sum of the probabilities is 1.

(b) Let X be the number of white balls in the selection. Write the probability distribution for X.

6. [15pt] Debug or explain the following minitab programs:

```
MTB > #you want to read 1,2,3,4,5 in c1:
MTB > # use READ not SET.
MTB > read c1;
SUBC>  1 2 3 4 5
* ERROR * Subcommand in error -- subcommand ignored
```

```
MTB > #what is wrong?
MTB > set c2
DATA> 1 2 3 4 5 6
DATA> end
MTB > k1 = sum(c2)
* ERROR * Name not found in dictionary
```

```
MTB > #what is wrong?
MTB > random 10 c1;
SUBC>  binomial 12 2.
* ERROR * One or more arguments ....
```

```
MTB > #What the following program calculates?
MTB > #(do not give the result)
MTB > set c1
DATA> 1 2 2 3 5 4 3 1 2 3
DATA> end
MTB > sum c1 c2
MTB > let c3=c2/10
MTB > print c3
```