King Fahd University of Petroleum & Minerals
Department of Math and Stat
Math 131 Semester 141 - Exam 3

Name_____ ID No._____

Points: Q1 = 1.5, Q2 = 1, Q3 = 1.5, Q4 = 2, Q5 = 2, Q6 = 1, Q7 = 2, Q8 = 1.5, Q9 = 3, Q10 = 1.5, Q11 = 3

1) For the set of data { 47, 52 , 36 , 88 , 10 , 36 , 47 , 90 , 36 , 12 },

the mean is

the median is

the mode is

2) How many distinguishable horizontal arrangements of all the letters in BOOKS are possible?

3) Five different books, two are mathematics books and three are accounting books, are to be arranged horizontally on a bookshelf. In how many ways can this be done if the first two books on the left are to be in mathematics?

4) From a group of ten people, five are assigned to room *A* and two to room *B*. In how many ways can the assignment be made?

5) In a 20-question examination, each question is worth 1 point and is graded right or wrong. In how many ways can a student score 18 points or higher?

6) Two fair dice are rolled. Find the probability that the sum of the dots appearing is 9 .

7) A manufacturer of widgets has three assembly lines: A, B, and C. The percentages of total daily output that are produced by the lines are 25%, 35%, and 40%, respectively. The percentages of defective units produced by the lines are estimated to be 1%, 2%, and 1%, respectively. If a widget is randomly selected from a day's production, what is the probability that it is defective?

8) In a survey, it was found that 40% like product A, 25% like product B, and 10% like both. If a person is randomly selected, find the probability that the person like product A given that he or she likes product B.

9) An urn contains ten marbles numbered 1 through 10. If two marbles are randomly drawn in succession without replacement, determine the probability that
   (a) both show an odd number;
   (b) at least one marble shows a number greater than 5.

10) If events E and F are independent with $P(E) = 0.3$ and $P(F) = 0.5$, find $P(E' \cap F)$.

11) If $P(E|F) = \frac{1}{2}$, $P(E \cup F) = \frac{9}{10}$, and $P(E \cap F) = \frac{2}{5}$, determine if E and F are independent or dependent.