King Fahd University of Petroleum & Minerals
Department of Math and Stat
Math 131 Semester 172 Exam 3

Name_____ ID No._____ Sec. No. _____

1) A manufacturer places a four-symbol code on each unit of a product. The first three symbols are numbers with the first not 0, and the fourth symbol is a letter other than o. How many codes are possible? [Note English has 26 letters]

2) Five different books are to be arranged horizontally on a bookshelf. If two are different mathematics books and three are different accounting books, in how many ways can all the books be arranged if the first two books are to be in mathematics?

3) How many distinguishable horizontal arrangements of all the letters in LETTERS are possible?

4) In a 20-question examination, each question is worth 5 points and is graded right or wrong. Considering the individual questions, in how many ways can a student score 90 points or higher?

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

6) If a pair of dice are rolled, the probability that the sum of the numbers of dots appearing is *not* 4 is

7) If $P(E) = 0.4$, $P(E \cup F) = 0.6$, and $P(E \cap F) = 0.1$, find $P(F')$.

8) In a survey of newspaper readers, it was found that 40% like newspaper A, 25% liked newspaper B, and 10% liked both. If a person in the survey is randomly selected, find the probability that the person liked the B, given that he liked A.

9) 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?

10) 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. Justify your answer.