King Fahd University of Petroleum & Minerals
Department of Math and Stat
Math 131-2 Semester 162 - Exam3

Name_____ ID No._____

24 Points: Q1: 3, Q2: 2, Q3: 2, Q4: 3, Q5 : 3, Q6 : 2, Q7: 3, Q8: 3, Q9: 3

1) A car plate consists of 3 letters followed by 4 digits (such as A B C 0 5 1 3 and C C H 1 7 7 7). How many different plates having three identical letters and with the first digit (from right) even (such as Z Z Z 3 8 1 4) are possible? Note: English has 26 letters.

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

3) 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?

4) 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.

5) Each question on a four-question multiple-choice examination has three choices, only one of which is correct. By answering each question in a random fashion, the probability that exactly two questions are answered correctly is

6) If a fair red die and a fair green die are rolled, find the probability that the sum is greater than 8, given that a 4 shows on the red die.

7) 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.

8) The probability that Khalid will travel this summer is $\frac{4}{5}$, and the probability that Saleh will travel is $\frac{5}{6}$. Find the probability that exactly one of them will travel this summer. (Assume independence.)

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 10,000 widgets are randomly selected from a day's production, how many of them are expected to be defective?