King Fahd University of Petroleum and Minerals
Department of Mathematical Sciences
Math 131 (041)(Chapter 10: Probability) Class Test III

Time: 30 minutes Marks: 30 Marks Obtained:_____

Name:

Write	Your	own	identity	number	correctly		Section Number		Serial Number
							$8\ (2:10\ p.m.)$		

NOTE: Show complete solution with all steps for full credit.
The questions are not in any order of difficulty at all.

Q.1. Let the random variable X represent the number of defective parts for a machine when 3 parts are sampled from a production line and tested. The following is the probability distribution of X.

$X = x$	0	1	2	3
$P(X = x) = f(x)$	0.51	0.38	0.10	0.01

Find the variance σ^2 of X.

Q.2. If the probability that a flourescent light has a useful life of at least 800 hours is 0.9, find the probabilities that among 20 such lights

(*a*) exactly 18 will have a useful life of at least 800 hours;

(*b*) at least 15 will have a useful life of at least 800 hours;

(*c*) at least 2 will not have a useful life of at least 800 hours.

Q. 3. The probability that a newspaper will receive $0, 1, 2, 3, 4, 5, 6, 7,$ or at least 8 letters to the editor about an unpopular decision of the school board are
0.01, 0.02, 0.05, 0.14, 0.16, 0.20, 0.18, 0.15, 0.09.

$X = x$	0	1	2	3	4	5	6	7	*at least* 8
$P(X = x)$	.01	.02	.05	.14	.16	.2	.18	.15	.09

What are the probabilities that the newspaper will receive

(*a*) at most 4 letters to the editor about the school board decision;

(*b*) at least 6;

(*c*) from 3 to 5?