SOLUTIONS

King Fahd University of Petroleum & Minerals
Department of Mathematical Science
STAT-211-Term042-I
Quiz #5 Section:
Name: ID: Serial:

Question One (5-Points)

Write **True** if the statement is true or **False** if not:

1. The probability of success in the binomial distribution must be fixed during all trails: **True**
2. The mean and the variance of a Poisson random variable are equal: **True**
3. Trails in the hypergeometric distribution are independent: **False**
4. The values of the standard normal distribution extends from $-\infty$ to ∞ :**True**
5. In the uniform distribution all intervals of equal length have the same probability: **True**

Question Two (5-Points)

1. If the ratio of defective items in a shipment is 20%, a sample of size five is taken randomly with replacement, then the probability of at least one defective item is:

   a. 0.67232 b. 0.32768 c. 0.4096 d. 0.5904

2. The number of a customers in a certain bank follow a Poisson distribution with an average of five customers per hour, then the probability of three customers in 30 minutes is:

   a. 0.7862 b. 0.1404 c. 0.8596 d. 0.2138

3. In a certain group there are 5 management, 4 finance, and 3 economic students, if a sample of size 3 is randomly taken without replacement, then the probability that there are one from each topic is :

   a. $\frac{1}{22}$ b. $\frac{7}{11}$ c. $\frac{3}{11}$ d. $\frac{2}{11}$

4. The yearly incomes for a group of 20,000 professional people is normally distributed with mean $\mu = \$60,000$ and standard deviation $\sigma = \$5000$. Then the number of these people have a yearly income over \$70,000 is:

   a. 456 b. 228 c. 10228 d. 912

5. If X is uniformly distributed over the interval $[-2, 3]$, the $P(X \le 0)$ is :

   a. 0 b. 0.4 c. -0.4 d. 0.6

NOTE: you may use One of the following areas, where

z_0	0.2	0.5	1.5	2.0	2.2	2.25
$P(0 < Z < z_0)$	0.0793	0.1915	0.4332	0.4772	0.4861	0.4878