

SOLUTIONS

King Fahd University of Petroleum & Minerals
Department of Mathematical Science
STAT-211-Term043-I-Quiz #5

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 hypergeometric distribution is fixed during all trials: **False**
2. The mean and the variance of a Poisson random variable are equal: **True**
3. Trials in the binomial distribution are independent: **True**
4. The values of the standard normal distribution extends from -3 to 3 : **False**
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 $P(X \leq 0)$ is :

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