



Netaji Subhas University of Technology

East Campus

Course Title : Discrete Structures

Assignment Number : 5

Course Code : CIECP01

Semester : 2nd

Q.1 We have been given two urns; Urn 1 contains 3 Blue and 3 Black balls, Urn 2 contains 2 blue and 15 black balls. One ball is drawn and kept aside, then another ball is drawn. Find the probability that the second ball drawn is blue.

Q.2 A bag contains 8 white and 6 red balls. What is the probability of drawing 2 balls of same color?

Q.3 Box A contains 2 white and 4 blue balls; Box B contains 5 white and 7 blue balls. A ball is transferred from box A to B , then a ball is drawn from B . What is the probability that the drawn ball is white?

Q.4 Data for manufacturing of a product by different companies is given as follows:

| Company | Faulty % | Production % |
|---------|----------|--------------|
| M_1 | 5 | 25 |
| M_2 | 4 | 30 |
| M_3 | 3 | 45 |

Find the Probability,

1.

$$\mathbb{P}(Faulty)$$

2.

$$\mathbb{P}(M_3 \mid Faulty)$$

Q.5 A factory manufactures bulbs with normal distribution. It is given that $\mu = 7.5$ and $\sigma = 0.16$. Find the percentage bulbs having length less than (a) 7.66 (b) 7.18

Q.5 A class consists of two sections A and B taught by C and D respectively. It is given that, for class A $\mu_a = 70$ and $\sigma_a = 15$; for class B $\mu_b = 70$ and $\sigma_b = 15$. The class teacher normalizes the marks of the students of section B . What is the normalized marks of these students who got,

1. 80 marks
2. 90 marks
3. 75 marks

Q.5 Mr. X speaks over the phone with the following distribution;

$$f(x) = \begin{cases} ke^{-\frac{x}{6}} & x > 0 \\ 0 & x \leq 0 \end{cases}$$

1. Find the probability that Mr. X will speak less than 6 minutes
2. Mr. X will speak between 6 and 8 minutes.
3. Mean time on the phone
4. Variance of the time Mr. X talks

Q.5 Probability of an item being defective is 0.01. Find the probability that a sample of 250 items randomly selected will contain more than one defective item. Assume Poisson's distribution

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