Victoria University of Bangladesh

Final Assessment , fall semester 2022

Name: HASIBUR RAHMAN

ID: 1119460101

Batch: 46th

Course Title: Statistical Decision Making

Course code: STA 321

Program: BBA

Submitted to: Taniya Nashin

sta 321

Ans. to the Q.No – 1

Computation to find the standard deviation -

x	p(x)	xp(x)	x^2	$x^2p(x)$
0	.02	.00	0	.00
1	.20	.20	1	.20
2	.30	.60	4	1.20
3	.30	.90	9	2.70
4	.10	.40	16	1.60
5	.08	.40	25	2.00
		$\Sigma xp(x) = 2.50$		$\Sigma x^2p(x) = 7.70$

step-1. Compute the mean of the discreate random variable.

The sum of the products xp(x),

recorded in the third column of table 5.7, gives the mean of x

$\mu = \Sigma x p(x) = 2.50$ defective computer pants in 400

The value

$$\Sigma x^2 p(x) = 7.70$$

$$\sigma = \sqrt{\Sigma x^2 p(x) - \mu^2}$$

$$= \sqrt{7.70 - (2.50)^2}$$

$$= \sqrt{1.45}$$

$= 1.204$ defective computer pants

Thus, a given shipment of 400 computer pants is expected to contain an average of 2.50 defective pants with a standard deviation of 1.204.

Ans. to the Q. No - 4

A binomial experiment is a statistical experiment is a statistical experiment that has the following properties -

1. The experiment consists of a fixed number of independent trials.

2. Each trial has only two possible outcomes, often ~~refe~~ referred to as "success" and failure".

3. The probability of success is constant and is the same for each trial.

Examples of binomial experiments include flipping a coin, rolling a dice or shooting a basketball, where each

trial result in either a "heads", "six", on "mad shot" (success) on a "tails", "not six", on "missed shot" (failure), respectively. The probability of success is constant for each trial and the trials are independent, meaning the outcome of one trial does not affect the outcome of another trial.

In binomial experiment, the number of successes in n trials has modeled by a binomial distribution, which is a discrete distribution that provides

the probability of obtaining exactly k success in n trials, given the probility of success, P. The binomial distribution is described by the following parameters:

* n: The number of trials
* P: The probability of successes in each trials
* K: the number of successes in an trials.

The binomial distribution can be used to make predictions about the expected

number of successes in a given number of trials, or to calculate the probability of obtaining a specific number of success.

It is widely used in fields such as finance, engeneering and biology.

It is important to note that the conditions for binomial eaperiment to be valid must be met, such as independent of trials, constantly probability of succes, and a fixed

number of trials. If these conditions are not met, the outcome may not follow a binomial distribution, and other statistical models may need to be used.

In investment, finance, it can be used to calculate the probability of a successful investment, based on historical data.