Impact Factor:

ISRA (India)	= **6.317**	**SIS** (USA)	= **0.912**	**ICV** (Poland)	= **6.630**
ISI (Dubai, UAE)	= **1.582**	**РИНЦ** (Russia)	= **3.939**	**PIF** (India)	= **1.940**
GIF (Australia)	= **0.564**	**ESJI** (KZ)	= **9.035**	**IBI** (India)	= **4.260**
JIF	= **1.500**	**SJIF** (Morocco)	= **7.184**	**OAJI** (USA)	= **0.350**

SOI: 1.1/TAS DOI: 10.15863/TAS

International Scientific Journal

Theoretical & Applied Science

p-ISSN: 2308-4944 (print) **e-ISSN:** 2409-0085 (online)

Year: 2022 **Issue:** 03 **Volume:** 107

Published: 26.03.2022 **http://T-Science.org**

QR – Issue **QR – Article**

Barno Abdiyevna Tursunova
Termiz State University
Lecturer at the Department of Mathematical Analysis

Zayniddin Eshmamatov
Termiz State University
3rd year student of mathematics

USE OF QUIZZES IN THE ASSESSMENT OF STUDENTS' KNOWLEDGE OF PROBABILITY THEORY AND MATHEMATICAL STATISTICS

Abstract: *This article provides an example of a quiz to assess students' knowledge of Probability Theory and Mathematical Statistics.*

Key words: *quiz, assessment, probability theory, mathematical statistics.*

Language: *English*

Citation: Tursunova, B. A., & Eshmamatov, Z. (2022). Use of quizzes in the assessment of students' knowledge of probability theory and mathematical statistics. *ISJ Theoretical & Applied Science, 03 (107),* 801-804.

Soi: http://s-o-i.org/1.1/TAS-03-107-53 ***Doi***: crossref https://dx.doi.org/10.15863/TAS.2022.03.107.53

Scopus ASCC: *3304.*

Introduction

The degree to which a lesson achieves its goal is determined by its outcomes. Seeing, identifying, and measuring outcomes is not a simple didactic task. Typically, a set of questions, examples, and questions is used to determine the level of knowledge, skills, and competencies that cover a particular topic. interactive methods are a good help. An example of this is a quiz based on the following interactive method.

The quiz is called "**ASSISMENT**" and consists of 4 stages:

1) Test.
2) Practical skills.
3) Fill in the blanks.
4) Symptom.

There are 4 stages in the assimilation method.

Initially, students are divided into 4 teams. Test samples will then be distributed. We give 2 minutes for each test and 10 minutes for 5 tests.

1.Test samples:

1- group

1. According to the classical definition of probability, the probability of events in which experiments is found?

A) The number of elementary events is limited and they are equally likely.

B) The number of elementary events is infinite.

C) The number of elementary events is equal to the number of experiments.

D) Voluntary experiment.

2. If A and $\overline{A}$ are opposite, which of the following relations is correct?

A) $A \cdot \overline{A} = A.$ B) $A + \overline{A} = \Omega.$ C) $A + \overline{A} = A.$ D) $A \cdot \overline{A} = \Omega.$

3. If events A and B are independent and P (A) = 0.7, P (B) = 0.5, find the probability of their sum?

A) 1.1 B)0.3 C)0.85 D)5/6

4. If P (A + B) = 0.9, P (B) = 0.3 are non-co-occurring events, find P (A)?

A)0.5 B)0.4 C)5/9 D)0.6

5. Find the probability that not a single coat of arms will fall when throwing 5 coins?

A) $\frac{1}{32}$ B)$\frac{5}{32}$ C)$\frac{31}{32}$ D) $\frac{1}{5}$

2- to the group

1. Which of the following properties is appropriate for the distribution function?

Impact Factor:	ISRA (India) = 6.317	SIS (USA) = 0.912	ICV (Poland) = 6.630
	ISI (Dubai, UAE) = 1.582	РИНЦ (Russia) = 3.939	PIF (India) = 1.940
	GIF (Australia) = 0.564	ESJI (KZ) = 9.035	IBI (India) = 4.260
	JIF = 1.500	SJIF (Morocco) = 7.184	OAJI (USA) = 0.350

A) Continuous B) Growing C) Periodic D) Limited

2. There are 5 identical balls numbered in the container, find the number of elements of Ω that correspond to the experiment of obtaining 3 of them in a row (non-repeated selection)?

A)20 B)40 C)60 D)10

3. How many shots were fired if the relative frequency of the number of shots fired at the target was 0.7 and the bullet did not hit the target 12 times?

A)36 B)40 C)72 D)54

4. Find the probability that one of the numbers is 5, if it is known that the sum of the numbers obtained by throwing 2 cubes is a multiple of 7?

A)$1/3$ B)$3/7$ C)$1/7$ D)$1/5$

5. If A and $\overline{A}$ are opposite events, which of the following is true?

A)$P(A\cdot\overline{A}) > 0$. B)$P(A)\cdot P(\overline{A}) = P(A\cdot\overline{A})$. C)$P(A) = P(\overline{A})$. D)$P(A) + P(\overline{A}) = 1$

3- to the group

1. Two cards are drawn from a deck of 36 cards at risk. Find the probability that they are both salt?

A)$1/105$ B)0.5 C)$1/9$ D)$1/12$

2. The space of elementary events corresponding to the experience of throwing a coin twice…

A)$\Omega = \{RG, GG, RR, GR\}$ B) $\Omega = \{RG, GG, RR\}$ C) $\Omega = \{GG, RR\}$ D) $\Omega = \{RG, GR\}$

3. In what range do the values of the distribution function change?

A)$[a; b]$ B)[0;1] C)(0;1) D)(0;2)

4. How many different two-digit numbers can be formed from the given numbers 1, 2, 3, 4?

A)24 B)12 C)8 D)4

5. The probability of the first sniper hitting the target is 0.8 and that of the second is 0.6. Find the probability that one sniper hits the target when the snipers shoot at the target at the same time?

A) 0,16 B)0,62 C)0,44 D)0,21

4- to the group

1. In what events was it first determined that the relative frequency is stable?

A) Physicist and chemist B) Chemist C) Demographics D) physicist

2. Let the game be thrown once. If A is a case of even number division and B is a case of division of three numbers without remainder, then P (A + B)?

A)$2/3$ B) $5/6$ C)1/6 D)1/2

3. If the events A_1, A_2, A_3 are independent and their probabilities are 0.3, 0.5 and 0.7, respectively. Find a chance to do at least one of them?

A)0.85 B)0.896 C)0.8 D)0.9

4. What are the possible values of some discrete numbers, and what is the quantity that takes them with certain probabilities?

A) Discrete random variable;
B) Singular random quantity;
C) A continuous random quantity;
D) Normal distribution.

5. When one bullet is fired, the probability of the bullet hitting the target is 0.7. Find the probability that 160 bullets hit the target when 200 bullets are fired?

A)$P_{200}(160) = 0.0004$
B) $P_{200}(160) = 0.0003$
C) $P_{200}(160) = 0.0005$
D) $P_{200}(160) = 0.0006$

The test will be collected 10 minutes after distribution and grades will be announced.

2 To test the practical skills, each team is given one example and they have to do it for 5 minutes. Of course, here are some examples where you need to know the theoretical knowledge of the subject to solve it.

Examples of examples:

To group 1

A trainee must score at least 4 to take the test. If it is known that the trainee will get a grade of "5" with a probability of 0.3, a grade of "4" with a probability of 0.6, find the probability that the trainee will pass the "test".

To group 2

Two snipers fire one bullet at a time. The probability of hitting the target in one shot is 0.5 for the first sniper and 0.4 for the second sniper. If the discrete random quantity is the number of touches to the target, construct the law of distribution of the random variable X.

To group 3

Two game cubes are thrown. Construct the law of distribution of a random quantity X, which is the product of the points of two cubes.

To group 4

The two hunters fired at the rabbit at the same time, unrelated to each other. If at least one of the hunters hits the target, the rabbit is shot. Find the probability that the first hunter will shoot the rabbit if the probability of hitting the target is 0.8 and the second is 0.75.

Solving these examples will be discussed and evaluated among the teams.

3. When filling in the dots, the students in the group will have to find the missing words in the given definition or theorem. This is to test the mastery of the theoretical material.

Distribution samples;

1. If several experiments are performed, the probability of occurrence of an A event in each experiment does not depend on the results of the experiment, such experiments are called independent experiments.

If in each of the n… experiments the probability of occurrence of event A is equal to p and the probability of non-occurrence is equal to q, then the probability of occurrence of A… m times is equal to the following expression:

$P_n(m) = C_n^m p^m q^{n-m} \quad , \quad m = 0,1 \dots n.$

2. If the probability of occurrence of event A in n… experiment is 0 <p <1, then in… large n

$$p_n(m) \approx \frac{1}{\sqrt{npq}} \cdot \frac{1}{\sqrt{2\pi}} \cdot e^{-\frac{x^2}{2}} \; , \quad x = \frac{m-np}{\sqrt{npq}}$$

The formula is appropriate. Here the function $\varphi(x) = \frac{1}{\sqrt{2\pi}} \cdot e^{-\frac{x^2}{2}}$ is called the Gaussian function.

3. If X t.m. 1,2,… m,… values $p_m = P\{X = m\} = q^{m-1}p$

with t.m., which is distributed according to the geometric law. is called. Here

$p = 1 - q \in (0,1).$

Examples of geometric laws… distributed t.m.s are: the number of products inspected before the release of poor quality product; the number of coins tossed before the coat of arms falls; the number of bullets fired before hitting the target, etc.

4. Two-dimensional t.m. properties of the distribution function:

1. The distribution function F (x, y) is limited.

2. The function F (x, y) is not… for any argument.

3. If any argument of the function F (x, y) is -∞ (in the sense of limit), then the function F (x, y) is equal to….

4. If one argument of the function F (x, y) is + ∞ (in the sense of limit), then

$F(x,+\infty) = F_1(\mathrm{x}) = F_X(\mathrm{x})$; $F(+\infty, y) = F_2(y) = F_Y(y)$

4. If both arguments are + ∞ (in the sense of limit), then F (+ ∞, + ∞) = 1.

5. The function F (x, y) is continuous from left to right on each….

You will be given a minute to do this. At the end of the time, it will be collected and the scores will be announced.

4. The next stage is called a symptom. The text is distributed to the groups, who have to find out in 1 minute which concept is in the text, depending on the symptoms.

Examples of texts:

1. It happens anytime, anywhere, it can happen by chance, it may not happen at all and vice versa it can happen, it can be unconnected or connected, it can be together or not together.

What is the concept?

2. It includes all the events in the experiment, the probability of which is 1, the letter of the Greek alphabet is used to denote it.

What is the concept?

3. U can take values of 0,1,2,… .n, sometimes 1,2,…, m,… or values in the range (a, b), its relation to the probabilities of acceptance of a value is sometimes given in the table , sometimes given by a function.

What is the concept?

From the elements of a collection of 4.n elements, it is possible to create subdivisions that differ either in their order or composition, or differ only in the order of their elements, or differ in at least one element.

What concepts are we talking about?

When the time is up, the teams will give their answers.

Before counting the total scores, everyone is asked an interesting but science-related question.

Sample question:

One student was writing a poem with good intentions, saying, "For now, I'm an amateur, and when I grow up, I'll be a great poet." One of her poems is titled "Lola". The first line of this poem is "Tulip opened in the steppe in Navbahor". The remaining lines are formed by substituting the words in line 1. What is the maximum number of lines in this poem?

At the end of the quiz, the scores of the teams will be announced and the winning team will be awarded. During a quiz like this, students learn what they don’t know and reinforce what they do know.

References:

1. Formanov, Sh. (2014). *“Ehtimollar nazariyasi”*. Toshkent: “Universitet”.
2. Ross, Sh.M. (2010). *A first course in probability*. Pearson Education,Inc.
3. Robert, B. (2008). *Ash Basic probability theory*. Dover Publications,Inc.
4. Abdushukurov, A.A., Azlarov, T.A., & Djamirzayev, A.A. (2003). *“Ehtimollar nazariyasi va matematik statistikadan misol va masalalar to’plami”*. Toshkent, Universitet.
5. Abdushukurov, A.A. (2010). *Ehtimollar nazariyasi va matematik statistika*. (p.164). Universitet.
6. Abdushukurov, A.A., & Zuparov, T.M. (2015). *Ehtimollar nazariyasi va matematik statistika.* Tafakkur bo’stoni.
7. Sirojiddinov, S. H., & Mamatov, M. (1980). *“Ehtimollar nazariyasi va matematik statistika”*. Toshkent: “O’qituvchi”.

8. Gmurman, V.YE. (1980). *«Ehtimollar nazariyasi va matematik statistikadan masalalar yechishga doir qo'llanma»*. Toshkent: «O'qituvchi».