Unique Science Academy, 60 – D Nawab Town, Lahore

Statistics 11 Monthly Test

(Chapter 6 – Probability)

27 September 2024   Allowed Time: 40 minutes

Total Marks: 30

Name _____

(Section I – Objective)

Question 1. Select the correct option.   **(1 x 13 = 13)**

1. What is the range of the probability?

   (a) $0 \leq$ Probability < 1 (b) $0 \leq$ Probability ≤ 1

   (c) $0 <$ Probability ≤ 1 (d) $0 <$ Probability < 1

2. What is the probability of sample space?

   (a) 0   (b) 0.5   (c) 1   (d) 1.5

3. Which of the following is NOT a random experiment?

   (a) Preparation of Hydrochloric Acid in a laboratory   (b) Throwing three coins

   (c) Rolling two dices   (d) Drawing a card from a deck

4. According to the set theory, sample space is equivalent to which of the following?

   (a) Subset   (b) Complement of a Set   (c) Universal Set   (d) All of these

5. Subset of a sample space is known as:

(a) Sample Point   (b) Event   (c) Random Experiment   (d) Outcome

6. All possible arrangements of objects when order matters

(a) Permutation   (b) Combination   (c) Factorial   (d) Sample Space

7. All possible arrangements of objects when order doesn't matter

(a) Permutation   (b) Combination   (c) Factorial   (d) Sample Space

8. All possible outcomes of a random experiment is known as:

(a) Permutation   (b) Combination   (c) Factorial   (d) Sample Space

9. A and B are two mutually exclusive events, which formula is correct?

(a) $P(A \cup B) = P(A) + P(B) + P(A \cap B)$ (b) $P(A \cup B) = P(A) + P(B) - P(A \cap B)$

(c) $P(A \cup B) = P(A) + P(B)$ (d) $P(A \cup B) = P(A) + P(B) - P(A \cup B)$

10. If A and B are two independent events, which formula is correct?

(a) $P(A \cap B) = P(A) \times P(B)$ (b) $P(A \cap B) = P(A/B) \times P(B)$

(c) $P(A \cap B) = P(B/A) \times P(A)$ (d) Both (b) and (c)

11. A dice is rolled, and the sample space is $S = \{1,2,3,4,5,6\}$, let A be the event that dice shows up even numbers and let B be the event that dice shows up odd numbers, then event A and B are what kind of event(s)?

(a) Equally likely   (b) Exhaustive   (c) Mutually Exclusive   (d) All of these

12. Conditional probability deals with what kind of events?

(a) Independent   (b) Dependent   (c) Mutually Exclusive   (d) Not Mutually Exclusive

13. The probability of an impossible event is:

(a) 1/2   (b) 1   (c) 0   (d) Undefined

(Section II – Subjective)

Question 2. Three coins are tossed.   **(5)**

(i)   Make sample space   **(1)**

(ii)   How many sample points are there in the sample space?   **(1)**

(iii)   Let R be the event that all coins showed up tail, then how many sample points are

there in the event R?   **(1)**

(iv)   Find the probability that all coins are tail.   **(2)**

Question 3. Two dices are rolled.   **(8)**

(i)   Make sample space   **(1)**

(ii)   How many possible sample points are there in the sample space when two dices

are rolled?   **(1)**

(iii)   Let X be the event that sum of dots on the rolled dices is more than 9.

Find the probability of event X.   **(3)**

(iv)   Let Y be the event that sum of dots on the rolled dices is an even number.

Find the probability of event Y.   **(3)**

Question 4. A bag containing three red, four pink and two white balls, two balls are

drawn at random from the bag, what is the probability that the drawn balls are pink? **(4)**