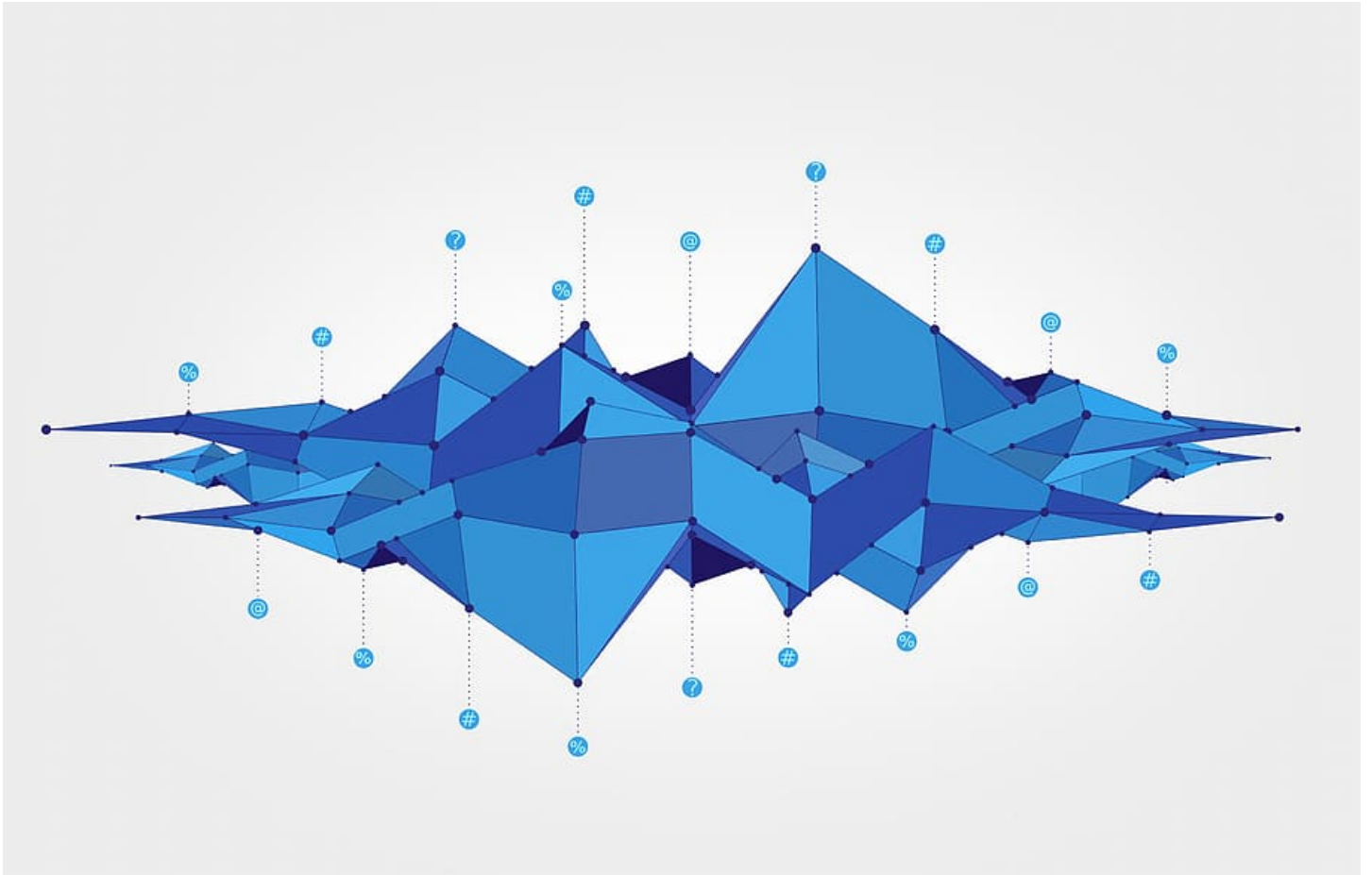


Statistics Question Bank

Abdullah Al Mahmud



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Contents

I	Statistics	2
1	Notation	2
1.1	Origin	2
1.1.1	Simple	2
II	Probability	2
2	Probability	2
2.1	Combination	2
2.1.1	Simple	2
2.2	Conceptual	2
2.2.1	Multiple Completion	2
2.2.2	Simple	2
2.3	Permutation	4
2.3.1	Simple	4

Part I

Statistics

1 Notation

1.1 Origin

1.1.1 Simple

1. Who is known as the Father of modern statistics?

- (a) P.C. Mahalanobis (b) Kazi Motaher Hossain
(c) Karl Pearson (d) R.A. Fisher

Part II

Probability

2 Probability

2.1 Combination

2.1.1 Simple

1. In how many ways can a team of 2 be formed from 4 people?

- (a) 4 (b) 6 (c) 8 (d) 12

2. ${}^nC_r =$

- (a) $\frac{n!}{(n-1)!(n+r)!}$ (b) $\frac{r!}{n!(n-r)!}$ (c) $\frac{n!(n-1)!}{r!}$ (d) $\frac{n!}{(r-n)!}$

2.2 Conceptual

2.2.1 Multiple Completion

3. Possible value of probability

- i. -1 ii. 0.5 iii. 0

Which one is correct?

- (a) i and ii (b) i and iii (c) ii and iii (d) i, ii and iii

2.2.2 Simple

4. What is the probability that at least one item in a sample space will occur?

- (a) 0 (b) 0.5 (c) 1 (d) Undefined

5. The probability of two disjoint sets happening together is:

- (a) 0.5 (b) 0 (c) 1 (d) $0 \leq x < 1$

6. How many additive laws of probability are there?

- (a) 1 (b) 2 (c) 3 (d) 4

7. $P(A \cup B) = P(A) + P(B)$ implies **A & B** are –
 (a) Disjoint (b) Independent (c) Joint (d) Independent
8. $P(A \cap B) = P(A) \times P(B)$ implies **A & B** are –
 (a) Disjoint (b) Independent (c) Joint (d) Independent
9. Which is the formula of classical approach of probability?
 (a) $P = \frac{\text{No. of favorable outcomes}}{\text{Total no. of possible outcomes}}$ (b) $P = \frac{\text{No. of total outcomes}}{\text{No. of favorable outcomes}}$
 (c) $P = \lim_{n(S) \rightarrow \infty} \frac{n(A)}{n(S)}$ (d) $P = \lim_{n(A) \rightarrow \infty} \frac{n(A)}{n(S)}$
10. Which is the formula of empirical/relative frequency approach of probability?
 (a) $P = \frac{\text{No. of favorable outcomes}}{\text{Total no. of possible outcomes}}$ (b) $P = \frac{\text{No. of total outcomes}}{\text{No. of favorable outcomes}}$
 (c) $P = \lim_{n(S) \rightarrow \infty} \frac{n(A)}{n(S)}$ (d) $P = \lim_{n(A) \rightarrow \infty} \frac{n(A)}{n(S)}$
11. What is the correct formula for conditional probability?
 (a) $P(A|B) = \frac{P(A \cap B)}{P(B|A)}$ (b) $P(A|B) = \frac{P(A \cap B)}{P(A)}$ (c) $P(A|B) = \frac{P(A \cap B)}{P(B)}$ (d) $P(A|B) = \frac{P(B|A)}{P(B|A)}$
12. The third axiom of probability is –
 (a) $0 \leq P(A) \leq 1$ (b) $P(S) = 1$
 (c) $P(A_1 \cup A_2 \cup \dots \cup A_n) = \sum_{i=1}^{\infty} P(A_i)$ (d) $P(A) = 1 - P(A)$
13. An act repeated under some specific conditions is called –
 (a) Event (b) Experiment (c) Sample (d) Sample space
14. $P(0)$ implies –
 (a) A certain event (b) An uncertain event (c) An impossible event (d) A probable event
15. Events having some common elements are called –
 (a) Complementary events (b) Mutually exclusive events
 (c) Exhaustive events (d) Non-Mutually exclusive events events
16. The minimum value of probability is
 (a) $-\alpha$ (b) 1 (c) 0 (d) -1
17. Each element of sample space is called–
 (a) Trial (b) Experiment (c) Variable (d) Sample Point
18. Two events not occurring together are called–
 (a) dependent Events (b) Independent Events
 (c) Mutually Exclusive Events (d) Marginal Events
19. If **A** and **B** are independent, which formula is correct?
 (a) $P(A \cap B) = P(A) \cdot P(B)$ (b) $P(A \cap B) = P(\bar{A}) \cdot P(B)$
 (c) $P(A \cap B) = P(A) \cdot P(\bar{B})$ (d) $P(A \cap \bar{B}) = P(A) \cdot P(B)$
20. Which of the following are disjoint events?
 (a) $A = \{1, 2, 3\}, B = \{4, 5\}$ (b) $A = \{a, b\}, B = \{b, c\}$
 (c) $A = \{0\}, B = \{0, 1\}$ (d) $A = \{x, y\}, B = \{x, y\}$

21. Which of the following are disjoint events?

(a) $P = \{1, 2\}, Q = \{2, 3\}$

(b) $P = \{x\}, Q = \{x, y\}$

(c) $P = \{1, 3\}, Q = \{3, 5\}$

(d) $P = \{m, n\}, Q = \{p, q\}$

22. Let the sample space be $S = \{1, 2, 3, \dots, 10\}$. Which of the following pairs of events are disjoint?

i. A : Number is prime, B : Number is greater than 3

ii. A : Number is even, B : Number is divisible by 3

iii. A : Number is less than 5, B : Number is greater than 6

Which one is correct?

(a) i and ii

(b) i and iii

(c) ii and iii

(d) i, ii and iii

2.3 Permutation

2.3.1 Simple

23. Three objects can be placed in 2 positions in – ways.

(a) 3

(b) 4

(c) 6

(d) 8

24. ${}^n p_r =$

(a) $\frac{n!}{(n-r)!}$

(b) $\frac{n!}{(n+r)!}$

(c) $\frac{n!}{r!}$

(d) $\frac{n!}{(r-n)!}$

Answer Key

1. (d) R.A. Fisher

1. (b) 6

2. (a) $\frac{n!}{(n-1)!(n+r)!}$

3. (c) ii and iii

4. (c) 1

5. (b) 0

6. (b) 2

7. (a) Disjoint

8. (b) Independent

9. (a) $P = \frac{\text{No. of favorable outcomes}}{\text{Total no. of possible outcomes}}$

10. (a) $P = \frac{\text{No. of favorable outcomes}}{\text{Total no. of possible outcomes}}$

11. (a) $P(A|B) = \frac{P(A \cap B)}{P(B|A)}$

12. (c) $P(A_1 \cup A_2 \cup \cdots \cup A_n) = \sum_{i=1}^{\infty} P(A_i)$

13. (b) Experiment

14. (c) An impossible event

15. (a) Complementary events

16. (c) 0

17. (d) Sample Point

18. (c) Mutually Exclusive Events

19. (a) $P(A \cap B) = P(A) \cdot P(B)$

20. (a) $A = \{1, 2, 3\}, B = \{4, 5\}$

21. (d) $P = \{m, n\}, Q = \{p, q\}$

22. (c) ii and iii

23. (c) 6

24. (a) $\frac{n!}{(n-r)!}$