

B.SC. SEMESTER II (Hons. & General) EXAMINATION 2023

ST. PAUL'S CATHEDRAL MISSION COLLEGE

CLASS TEST EXAMINATION

SUBJECT: STATISTICS GENERAL

PAPER: CC2/GE2

(Elementary Probability Theory)

FULL MARKS: –10

TIME: 30 MINS.

1. Answer any 10 questions of the following:

1x10

i) The Probability of any event

a) is greater than 1, b) lies between 0 to 1. c) May be any real number, d) none of these.

ii) A number is selected at random from first 90 natural numbers. The probability of the number selected being a multiple of 3 or 5 is

a) $\frac{8}{15}$ b) $\frac{7}{15}$ c) $\frac{28}{45}$ d) None of these.

iii) If A and B any two mutually exclusive events, then

a) $P(A \cup B) = P(A) + P(B)$

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

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

d) $P(A \cup B) = P(A) + P(B) + P(A \cap B)$

iv) Distribution function is

a) Monotonically decreasing

b) Non increasing

c) monotonically non-decreasing

d) none of the above.

v) If X and Y are independent random variables then :

a) $\text{COV}(XY)=1$ b) $\text{COV}(XY)=0$ c) $\text{COV}(XY)=E(X).E(Y)$ d) $\text{COV}(XY)=\text{Any constant value.}$

vi) The mean and variance of a random variable X are 3 and 4 respectively, then variance of $\left(\frac{x-3}{2}\right)$ is

a) 4

b) 1

c) 0

d) 3

vii) The expected value of the sum of the points obtained in two throws of a fair die is

a) 6 b) 7 c) 8 d) None of these.

viii) For the p.d.f. given by $f(x)=e^{-x}$, $x \geq 0$ then, $E(X)$ is

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

ix) The mean and variance of binomial distribution are 8 and 4, respectively. Then $P(X=1)$ is equal to :

- a) $\frac{1}{2^{12}}$ b) $\frac{1}{2^4}$ c) $\frac{1}{2^6}$ d) $\frac{1}{2^8}$

x) If X is a random variable and r is an integer, then $E((X - \mu)^r)$ represents:

- a) r^{th} Central moment b) r^{th} factorial moment c) r^{th} raw moment d) none of the above.

xi) If the p.d.f. $f(x)$ is maximum at $x = k$, then k is

- a) Mean b) Mode c) Median d) None of these.

xii) $V(aX+b) = a^2 V(X)$, where a is a constant. (Write TRUE or FALSE).

xiii) Mean of Geometric Distribution is _____.

xiv) Mutually exclusive events are not independent. (Write TRUE or FALSE).

xv) For Binomial distribution, mean = variance. (Write TRUE or FALSE).

.....**THE END**.....