

INSTRUCTIONS:

- Attempt this section on the MCOs Answer Sheet only.
- Use black ball point or marker for shading only one circle for correct option of a question.
- No mark will be awarded for cutting, erasing, over writing and multiple circles shading.

Q. 1. Choose the correct option i.e. A,B,C, or D.

1. A numerical value calculated from population is known as
 - (A) Sample
 - (B) Statistic
 - (C) Parameter
 - (D) None of these
2. Variable that cannot be expressed numerically is called
 - (A) Discrete variable
 - (B) Continuous variable
 - (C) Constant
 - (D) None of these
3. If a population has mean $\bar{x} = 10$, $\sum x = 230$, then the number of observations in the population are
 - (A) 23
 - (B) 24.9
 - (C) 25
 - (D) None of these
4. A value that divides the ordered data into two equal parts is called
 - (A) Mean
 - (B) Mode
 - (C) Geometric mean
 - (D) Median
5. For leptokurtic distribution b_2 is 3.
 - (A) Less than
 - (B) Greater than
 - (C) Equal to
 - (D) None of these
6. Standard deviation is the of the variance.
 - (A) Square
 - (B) Square root
 - (C) Cube
 - (D) None of these
7. Fisher's ideal index number is the of Laspyre's and Paasche's index numbers.
 - (A) Geometric mean
 - (B) Arithmetic mean
 - (C) Harmonic mean
 - (D) None of these
8. A coin tossed twice. The sample space for this experiment contains sample points.
 - (A) 2
 - (B) 3
 - (C) 4
 - (D) 8
9. The probability of sure event is
 - (A) Zero
 - (B) Unity
 - (C) In the range of 0 to 1
 - (D) None of these
10. Which of the following values cannot be the probability of an event?
 - (A) 0.73
 - (B) 0
 - (C) 0.59
 - (D) 1.98
11. The number of children in a family is an example of
 - (A) Discrete variable
 - (B) Continuous variable
 - (C) Qualitative variable
 - (D) None of these
12. If x is a random variable and b is any constant then $\text{var}(x \pm b) = \dots\dots\dots$
 - (A) $\text{var}(x) + b$
 - (B) $\text{var}(x) - b$
 - (C) $\text{var}(x)$
 - (D) None of these
13. Variance of the discrete uniform distribution is
 - (A) $\frac{N^2+1}{12}$
 - (B) $\frac{N^2-1}{12}$
 - (C) $\frac{N^2+1}{2}$
 - (D) None of these
14. Mean of the hyper geometric distribution is
 - (A) $\frac{Nk}{n}$
 - (B) $\frac{nk}{N}$
 - (C) $\frac{k}{N}$
 - (D) None of these
15. Mean of the binomial distribution is its variance.
 - (A) Greater than
 - (B) Less than
 - (C) Equal to
 - (D) None of these

"Section-B"

Marks: 40

Q. 2. Attempt any Ten (10) of the following parts. Each part carries equal marks.

- (i) Differentiate between Sample and Population by giving examples.
- (ii) Distinguish between Descriptive and Inferential statistics.
- (iii) Differentiate between Primary and Secondary data.
- (iv) Compute arithmetic mean if $\sum f = 15$, $\sum fu = 18$, $h = 5$, $u = \frac{x-20}{h}$
- (v) Describe briefly absolute and relative dispersions.
- (vi) Given data: Median = 11, first quartile = 9, third quartile = 14. Find Bowley's coefficient of skewness.
- (vii) Differentiate between fixed base method and chain base method.
- (viii) In how many ways can 4 seats on a sofa set be occupied by 6 persons?
- (ix) Define the following terms:
Experiment, Equally Likely Events, Mutually Exclusive Events.
- (x) A pair of coins is tossed. What is the probability of getting at least one head?
- (xi) Explain the following terms:
Probability Distribution and Probability Density Function of a random variable.
- (xii) Given : $n = 9$, $P = \frac{1}{3}$ Find mean and variance of the binomial distribution.
- (xiii) Given : $n = 20$, $P = \frac{1}{2}$ Find (i) $E(x)$ (ii) $E(3x + 4)$

"Section-C"

Marks: 20

Note:- Attempt any Two (2) questions. Each question carries equal marks.

- Q. 3. (i) Define a frequency distribution.
(ii) Make a frequency distribution for the following data, using a class interval of 10. Indicate class limits and class boundaries.
- 61, 69, 82, 92, 50, 42, 63, 53, 65, 73, 74, 80, 75, 93, 56, 79, 76.
- Q. 4. Compute standard deviation and coefficient of variation for the following data.

x	10	12	14	16	18	20	22
f	1	3	6	10	7	1	2

- Q. 5. (i) Find complete binomial distribution, if $n = 3$ and $p = \frac{1}{3}$
(ii) If $n = 20$, $P = \frac{1}{2}$ Then find mean, variance and standard deviation for the binomial distribution.