



Roll No _____ to be filled in by the candidate

(For All Sessions)

Paper Code 6 1 R 6

Statistics (Objective)

Time: 20 Minutes Marks : 17

Rwp-11-23

Note:- Write answers to the questions on the objective answer sheet provided. Four possible answers are given. Which answer you consider correct fill the corresponding circle A,B,C or D in front of each question with marker or ink on the answer sheet provided.

- 1.1 The range of probability is between :
(A) 0 to 1 (B) -1 to +1 (C) 0 to ∞ (D) $-\infty$ to 0
2. Random numbers can be generated :
(A) Manually (B) Mechanically (C) Both (A) & (B) (D) None of these
3. If C is constant, then E (C) = _____
(A) C (B) zero (C) 1 (D) None of these
4. In a binomial experiment, the successive trials are :
(A) Fixed (B) Dependent (C) Independent (D) All of these
5. The mean and variance of Binomial distribution are :
(A) np & npq (B) n & p (C) np & \sqrt{npq} (D) np & \sqrt{np}
6. The mean of hyper geometric distribution is:
(A) $\frac{nN}{K}$ (B) $\frac{NK}{n}$ (C) $\frac{nK}{N}$ (D) $\frac{n+K}{N}$
7. At present word statistics is used in _____ senses.
(A) 2 (B) 3 (C) 4 (D) None of these
8. A statistical table has at least _____ parts.
(A) 5 (B) 4 (C) 3 (D) 2
9. Median divides the data into _____ parts.
(A) 2 (B) 4 (C) 10 (D) 100
10. The most frequent value of data if it exists is :
(A) Mode (B) Median (C) Mean (D) Geometric Mean
11. The mean is based on :
(A) Small values (B) Large values (C) All values (D) None of these
12. For a symmetrical distribution,
(A) $\beta_1 = 0$ (B) $\beta_1 = 3$ (C) $\beta_1 = -1$ (D) $\beta_1 = -3$
13. Mean deviation of the values 4,4,4,4, is :
(A) zero (B) 4 (C) 8 (D) 12
14. The standard deviation of 8,8,8,8,8 is
(A) $\sqrt{8}$ (B) 8 (C) Zero (D) $(8)^2$
15. Which is the most suitable average in chain base method?
(A) AM (B) GM (C) HM (D) Median
16. CPI is the abbreviation of _____ Price Index.
(A) Consumer (B) Constant (C) Current (D) Special
17. A coin and a die can be thrown together in _____ ways.
(A) 2 (B) 12 (C) 8 (D) 24

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Statistics (Subjective)

Time: 2:40 Hours Marks : 68

Section - I

Rwp-11-23

2. Give short answers of any eight parts from the following .

2x8=16

- (i) What is Inferential Statistics.
- (ii) Define data with an example.
- (iii) What are demerits of the Harmonic Mean?
- (iv) Find A.M. when $D = X - 20$, $n = 30$ and $\sum D = 60$.
- (v) What is fixed base method to find index numbers?
- (vi) What are consumer price index numbers?
- (vii) What is the mode in the data 3,7,8,8,4,3,2 and 3?
- (viii) Write two merits of Mode.
- (ix) What are the simple index numbers?
- (x) Given that Laspeyre's index = 140 and Paasche's index = 142. Find Fisher's index.
- (xi) Find the value of mode in symmetrical distribution when the value of Mean and Median is 10 each.
- (xii) Find G.M. when A.M. and H.M. of two values are 64 and 4 respectively.

2x8=16

3. Give short answers of any eight parts from the following .

- (i) Explain pie Chart in your own words.
- (ii) What do you mean by skewed distribution?
- (iii) Describe the measure of dispersion.
- (iv) Define quartile deviation with formula.
- (v) Narrate any two properties of standard deviation.
- (vi) What do you mean by mesokurtic distribution?
- (vii) Explain empirical definition of probability.
- (viii) Distinguish between the terms sample point and outcome.
- (ix) If two fair coins are tossed, find the probability of getting no heads.
- (x) Suppose $P(A) = \frac{1}{3}$, $P(A \cup B) = \frac{1}{2}$ and $P(A \cap B) = \frac{1}{10}$. Find $P(B)$.
- (xi) Given that $n = 10$, $\sum(X-15) = -20$ and $\sum(X-15)^2 = 524$. Find variance.
- (xii) Given that mean = 50, median = 43 and coefficient of skewness = 1. Find the value of variance.

2x6=12

4. Give short answers of any six parts from the following.

- (i) What do you mean by expected value of a random variable?
- (ii) Define random variable.
- (iii) Describe the properties of the probability distribution.
- (iv) What is a Bernoulli trial?
- (v) What is the mean and variance of hypergeometric distribution?
- (vi) Describe two properties of binomial experiment.
- (vii) If $p = \frac{1}{3}$, $n = 15$, what will be the mean and variance of binomial distribution?
- (viii) Given $f(x) = \frac{x}{10}$, $x = 1, 2, 3, 4$. Show that $f(x)$ is a probability function.
- (ix) If X is hypergeometric r.v. with $N = 10$, $n = 4$ and $k = 3$, find $P(X = 1)$.

Section - II

8x3=24

Note:- Attempt any three question from the following.

5. (a) Find arithmetic mean from the following data:

Classes	0-10	10-40	40-90	90-140
f	40	110	150	70

4 + 4 = 8

(b) The reciprocal of X values are given below :
0.0500, 0.0454, 0.0400, 0.0333, 0.0285. Find Geometric Mean of X.

6. (a) First three moments of distribution about $X = 2$ are 1, 2.5, and 5.5. Calculate Mean and Coefficient of Variation

4 + 4 = 8

(b) Compute the coefficient of skewness from the given data :

Groups	0-10	10-20	20-30	30-40
f	4	12	7	2

4 + 4 = 8

7. (a) Compute link relatives and chain indices :

Years	2017	2018	2019	2020	2021	2022
Prices	146	151	158	171	179	190

(b) A pair of dice are rolled. Find the probability that the sum of the uppermost dots is either 6 or 9.

8. (a) A fair coin is tossed three times. Let X be a random variable which denotes the number of heads. What is the probability distribution of X ?

4 + 4 = 8

(b) A continuous random variable X has probability density function :
 $f(x) = C \cdot x$ for $0 < x < 2$

9. (a) A bag contains 4 red and 6 black balls. A sample of 4 balls is selected from a bag without replacement. Let x be the number of red balls. Find the probability distribution of X .

4 + 4 = 8

(b) In a binomial distribution with $n = 5$, what is the value of other Parameters if $P(X = 0) = P(X = 1)$. Find its Mean and variance.