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HSSC - (Part-I) - A / 2023

Roll No _____ to be filled in by the candidate

(For All Sessions)

Paper Code	6	1	8	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) -∞ 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) nq & $\sqrt{nq}$ (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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Inter - (Part-I) – A / 2023

(For All Sessions)

Roll No _____ to be filled in by the candidate

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 Harmoni : Mean?
(iv) Find A.M. when D = X-20. n = 30 and ∑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.

3. Give short answers of any eight parts from the following . 2x8=16

(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, ∑(X-15) = -20 and $\sum (X-15)^2 = 524$. Find variance.
(xii) Given that mean = 50, median = 48 and coefficient of skewness = 1. Find the value of variance.

4. Give short answers of any six parts from the following. 2x6=12

(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

Note:- Attempt any three question from the following. 8x3=24

5. (a) Find arithmetic mean from the following data: 4 + 4 =8

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

(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

7. (a) Compute link relatives and chain indices : 4 + 4 =8

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. x for $0 < x < 2$
Calculate (i) C (ii) $P(1 < x < 1.5)$

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 distributuion with n = 5, what is the value of other Parameters if P (X = 0) = P (X = 1). Find its Mean and variance.

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