Model Paper Statistics Intermediate Part-I
(Objective)

Total Marks: 17 Time Allowed: 20 Minutes

Q.No 1: Circle the correct option i.e. A/ B/ C/ D. Each part carries one mark.

1	The branch of statistics which deals with decision making about population is							
	A	Descriptive	B	Inferential	C	Applied	D	Theoretical
2	The representative part of population is							
	A	Variable	B	Constant	C	Attribute	D	Sample
3	Sorting f letters in a post office is an example of							
	A	Classificatio n	B	Tabulation	C	dichotomy	D	ogive
4	Difference between class boundaries of a class is called							
	A	Class interval	B	Class mark	C	Frequency	D	Mid-point
5	Cumulative frequency is used in the formula of							
	A	Mean	B	Median	C	Mode	D	G.M
6	Which of following may have two or more values?							
	A	G.M	B	Mean	C	Median	D	Mode
7	Which of the following is a measure of Kurtosis?							
	A	S^2	B	b_1	C	b_2	D	a_3
8	Measures of dispersions cannot be							
	A	Equal	B	Un-equal	C	Positive	D	Negative
9	Fisher's index number is a							
	A	Simple I.No	B	Unweighted I.No	C	Weighted I.No	D	CPI
10	The base period changes with the current year in							
	A	Fixed Base Method	B	Chain Base Method	C	Family Budget Method	D	Laspeyre's Method
11	The probability of a null event is always							
	A	0	B	1	C	1/13	D	½
12	Drawing of two cards without replacement is example of							
	A	Independent events	B	Dependent events	C	Joint events	D	Exhaustive events
13	The variable X= No of heads, when three coins are tossed has values							
	A	0,1	B	0,1,2	C	0,1,2,3	D	0,1,2,3,4
14	Expected value of a random variable is equal to its							
	A	Mode	B	Variance	C	Median	D	Mean
15	The successive trials in Hypergeometric experiment are							
	A	Independent	B	Dependent	C	Equal	D	different
16	The mean of a hyper geometric Distribution is							
	A	$\frac{nK}{N}$	B	$\frac{K}{nN}$	C	$\frac{N}{nk}$	D	$\frac{NK}{n}$
17	The number of terms in the expansion of the Binomial (+) is							
	A	N	B	n-1	C	n+1	D	2n

Model Paper Statistics Intermediate Part-I
(Subjective)

Section I

Marks 68 **Time Allowed: 2:40 Hours**

Q.No. 2 Attempt any eight parts. All questions carry equal parts.

i:- Describe statistics as a discipline of science.	ii:- Name the methods of collecting primary data,
iii:- Define qualitative data with examples	iv:- Highlights any two demerits of mean.
v:- Define the term Harmonic Mean.	vi:- Find median for 86,60,88,25,40,21.
vii:- Explain the empirical relationship between mean, median and mode.	viii:- The speed of a bus in five intervals is 65,57,67,54 and 35find its average speed.
ix:- Why Fishers index number is called ideal index number.	x:- Define chain index number in your own words.
xi:- Enlist method of construction of CPI.	x:- Evaluate the weighted index if $\sum WI=12610$ and $\sum W=100$.

Q.No. 3 Attempt any eight parts. All questions carry equal parts.

i:- What are the basis of classification?	ii:- Discuss histogram in your own words.
iii:- Differentiate between diagram and graph.	iv:- Define the term relative dispersion.
v:- For a series of 12 values find S.D if the sum of squared deviations from mean is 192.	vi:- How will you calculate range from grouped data?
vii:- write down the formula for corrected moments.	viii:- Enlist any four properties of variance.
ix:- How many possible permutations can be formed from the words COMMITTEE?	x:- Differentiate between independent and dependent events.
xi:- Describe the classical and relative frequency approaches of probability.	x:- If A and B are independent events with P(A)=0.2 and P(B)=0.6 find P(AUB).

Q.No. 4 Attempt any six parts. All questions carry equal parts.

i:- What is the difference between a variable and a random variable?	ii:-Enlist the values of random variable X=number of heads when three coins are tossed.
iii:- State the laws of Expectation.	iv:- How can random numbers be generated?
v:- If N=52, n=13 and k=12 find the standard deviation of Hypergeometric distribution.	vi:- Write down the properties of the Binomial Random Experiment.
Vii:- Describe the Hypergeometric probability distribution in your own words.	Viii:- In a Binomial distribution with n=5, P(X=0)=P(X=1), find the variance.
ix:- Describe any two the applications of the Binomial distribution.	

Section II

Note:- Attempt any three question.

Q.5:- a. A variable Y is determined from a variable X by the equation Y=10-4X. Find Y when X=-3,-2,-1,0,1,2,3,4,5. And show that $\bar{Y} = 10-\bar{4}$.

b. For the data given below show that G.M>H.M

Group	1-5	6-10	11-15	16-20
Frequency	13	17	20	10

Q.6:- a. For following set of values find C.V. 13,17,20,25,30,35.

b. For the data given below find Pearson's coefficient of skewness

Group	11-20	21-30	31-40	41-50
Frequency	6	27	10	7

Q.7:- a. Compute chain indices for following data.

Years	2010	2011	2012	2013	2014
Price	27	18	31	39	45

b. Five balls are drawn from a box containing 7 red and 4 blue balls. If X denotes thenumber blue balls drawn from the box, obtain the probability distribution of X.

Q.8:- a. For the data given below compute mean and variance of the variable X.

x	0	1	2	3
P(X=x)	1/8	3/8	3/8	1/8

b. A continuous r.v. has pdf $f(x)=cx$ $0<x<2$
compute i: c ii: $P(1<x<2)$

Q.9:- a. Five dice are thrown. Determine the probabilities of 0,1,2,3,4, and 5 sixes.

b. A committee of size 3 is to be selected from 4 women and 6 men. Obtain theprobability distribution of number of women in the committee.

The End

(a) Draw all possible samples of size 2 with replacement from the population consisting of values 3, 7 and 10 . Make sampling distribution of sample means and then find its mea n and variance.

Then verify that (i) $\mu_{\bar{x}} = \mu$

(ii) $\sigma^2_{\bar{x}} = \frac{\sigma^2}{n}$

(b) Find the proportion of even numbers of the samples of size 2 without replacement from the population consisting of values 3, 4, 5, 6 and 7. Construct the sampling distribution of sample proportions and then find its mean and variance.

Verify that (i) $\mu_{\hat{p}} = p$

(ii) $\sigma^2_{\hat{p}} = \frac{pq}{n} \times \frac{N-n}{N-1}$

Where 'p' is population proportion.

(a) A random sample of size n=50 from a normal population yielded the sample values $\bar{x}$ =190 and S^2 =800. Find 95% confidence interval for μ.

(b) For a random sample of 10 from a normal population, $\bar{x}$ =20 and $\sum X^2$=5144. Test the hypothesis that mean in the population is 19.50 at 1% level of significance.

(a) Determine the estimated regression equation Y= a+ bX, given that $\bar{X}$ =52, $\bar{Y}$ =237, $\sum(X - \bar{X})^2$=280($\sum(X - \bar{X})(Y - \bar{Y})$=9871.

(b) Find the co-efficient of correlation from the following data:

X	9	8	7	6	10
Y	17	18	15	12	18

(a) Determine whether the two attributes A and B are independent, positively associated or negatively associated using the following data:

	B	β
A	407	58
α	63	222

If association is present, then find co-efficient of association.

(b) Fit a straight line with origin at 1990 to the following data and find the trend values.

Years	1988	1989	1990	1991	1992
Profit	600	500	700	800	600

(The End)