FD A/16

Objective 14 Roll No. : _____

Paper Code **6185**

Intermediate Part First (New Scheme)

STATISTICS (Objective)

Time: 20 Minutes Marks: 17

Q.No.1 **You have four choices for each objective type question as A, B, C and D. The choice which you think is correct, fill the relevant circle in front of that question number on computerized answer sheet. Use marker or pen to fill the circles. Cutting or filling two or more circles will result in zero marks in that question. Attempt as many questions as given in objective type question paper and leave other circles blank.**

S.#	Questions	A	B	C	D
1	If x and y are independent random variables then S.D(x – y) will be:	S.D(x)	S.D(x) + S.D(y)	$\sqrt{S.D(x)+S.D(y)}$	$\sqrt{Var(x)+Var(y)}$
2	The mean deviation of the values 18, 12, 15 is:	Zero	3	6	2
3	A measure of dispersion is always:	Zero	Positive	Small	One
4	Which is least if $\bar{x}=100$?	$\Sigma(x-200)^2$	$\Sigma(x-100)^2$	$\Sigma(x-50)^2$	$\Sigma(x-150)^2$
5	The sum of deviations is zero when the deviations are taken from:	Mean	Median	Mode	G.M.
6	The measure of central tendency listed below is:	Range	Mean	Variance	Moments
7	In a relative frequency distribution, the total of the relative frequencies is:	100	One	Σf	Σx
8	The word Statistics comes from the Latin word:	Status	Statistik	Statista	Statistique
9	Binomial distribution has:	Three parameters	One parameter	Two parameters	None of these
10	Which is true in binomial distribution?	Mean > variance	Mean < variance	Mean = variance	None of these
11	Mean of binomial distribution is:	nq	npq	$\sqrt{npq}$	np
12	A random variable may be discrete or:	Experimental	Continuous	Fixed	Discontinuous
13	Sum of dots when two dice are rolled is:	Discrete variable	Continuous variable	Constant	Qualitative variable
14	A set consists of more than one sample points is called:	Simple event	Compound event	Empty set	None of these
15	Any subset of the sample space is called:	Nothing	Zero	Event	None of these
16	Simple index number involves commodity:	One	Two	Three	Four
17	The index number for base year is always taken as:	50	100	150	200

16-214/I-4500

Intermediate Part First (New Scheme) Roll No. _____

STATISTICS (Subjective)

Time: 03:10 Hours Marks: 83

SECTION – I

2. **Write short answers of any EIGHT parts.** 16

(i) What is meant by primary data?
(ii) Define inferential statistics.
(iii) Define the term median.
(iv) Write the properties of arithmetic mean. (any two)
(v) Given $u = x - \frac{170}{5}$, $\sum fu = 100$, $\sum f = 200$. Find $\bar{x}$.
(vi) Given $\ell = 200$, $f_m = 25$, $f_1 = 20$, $f_2 = 20$, $h = 10$. Find mode.
(vii) Define index number.
(viii) Explain the fixed base method.
(ix) Given $N = 5$, $\sum\left(\frac{p_n}{p_0}\right) \times 100 = 510$. Find price index by average of relatives method.
(x) Define the term weighted index.
(xi) Given $\sum p_0 q_n = 1000$ and $\sum p_n q_n = 1360$, find current year weighted index.
(xii) Define geometric mean with formula.

3. **Write short answers of any EIGHT parts.** 16

(i) What is histogram?
(ii) Name any four parts of a statistical table.
(iii) What is relative dispersion?
(iv) What are the names of measures of absolute dispersion?
(v) Find the range of –1, –3, 0, 2, 3.
(vi) What is mean deviation?
(vii) Differentiate between inter quartile range and quartile deviation.
(viii) What are values of β_1 and β_2 in a symmetrical distribution?
(ix) What are combinations?
(x) What is a sample space?
(xi) Give the addition law for two mutually exclusive events.
(xii) What are exhaustive events?

4. **Write short answers of any SIX parts.** 12

(i) What is continuous random variable?
(ii) What are the random numbers?
(iii) What are the properties of probability density function?
(iv) Define random variable.
(v) Write down the properties of discrete probability distribution.
(vi) In a binomial distribution n = 7, p = 0.7. Find coefficient of variation.
(vii) Define hypergeometric experiment.
(viii) If x is a binomial random variable, find p(x = 3) = ? when n = 3, p = ½.
(ix) In binomial distribution mean = 6, variance = 4. Find its parameters.

SECTION – II Attempt any THREE questions. Each question carries 08 marks.

5. (a) The mean and geometric mean of three numbers are 34 and 18 respectively. Find all three numbers when geometric mean of first two numbers is 10. 04

(b) Compute the median of the following distribution: 04

Classes	0 – 7	7 – 14	14 – 21	21 – 28
Frequency	5	11	15	9

6. (a) Find standard deviation from the data given below: 04

Classes	10 – 19	20 – 29	30 – 39	40 – 49	50 – 59
Frequencies	5	25	40	20	10

(b) Given $\sum f = 120$, $\sum fx = 296$, mode = 2.94 and second moment about mean = 1.48. Calculate coefficient of skewness. 04

(Continued P/2)

7. (a) Find Laspeyer's price index number taking 1980 as base: 04

Commodities	Prices		Quantity	
	1980	1981	1980	1981
A	10	12	20	22
B	8	8	16	18
C	5	6	10	11
D	4	4	7	8

(b) From a well shuffled pack of 52 playing cards, a card is drawn at random. Find the probability that card drawn is (i) diamond card (ii) pictured card. 04

8. (a) Given the discrete probability mass function $p(x) = \binom{4}{x}\left(\frac{1}{2}\right)^{x}\left(\frac{1}{2}\right)^{4-x}$ for $x = 0, 1, 2, 3, 4$. Find the probability distribution and calculate $E(x)$. 04

(b) A continuous random variable x having values between 0 and 4 has a density function given by $f(x) = \frac{1}{2} - ax$ where a is a constant. Find (i) a (ii) $p(1 < x < 2)$ 04

9. (a) In binomial distribution $n = 5$ and $p(x = 0) = p(x = 1)$. Find (i) ρ (ii) mean and variance. 04

(b) A bag contains 4 red and 3 white balls. If 3 balls are drawn at random by without replacement method. Construct probability distribution of white balls. 04

SECTION – III (Practical) Attempt any THREE parts. Each part carries 05 marks.

10. (a) Find mode:

Class	0 – 10	10 – 20	20 – 30	30 – 40	40 - 50
f	14	20	27	35	15

(b) Compute quartile deviation and its coefficient:

Score	50 – 59	60 – 69	70 – 79	80 – 89	90 – 99
No. of students	7	12	15	4	2

(c) Calculate the index number for 1990 on the basis of 1978:

Commodity	Unit of price	Quantity consumed	Prices	
			1978	1990
Wheat	Rs. Per maund	20 seers	10	13
Dal	Rs. Per maund	8 seers	15	20
Oil	Rs. Per maund	1½ seer	90	200
Fuel	Rs. Per maund	4 mounds	2	3
Clothing	Rs. Per yard	22 yards	2	4

(d) Fit a binomial distribution if $n = 5$, $p = 0.4$ and $N = 200$.

(e) A bag contains ten items, seven good and three defective. A sample of four items is to be selected. Compute the probability distribution for the number of defectives. Also find mean and standard deviation.

Bio Math Physics.