Roll Number
In Figures: _____
In Words: _____
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PR XI (01) 16
STATISTICS
Inter Part-I
(Fresh / Reappear)
Fic. No. _____
(For Board's Office use only)

Superintendent
Signature / Stamp:
_____

STATISTICS
Inter Part-I
(Fresh / Reappear)

Fic. No. _____
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Time Allowed: 3 Hours

Marks: 85

Note: There are THREE sections in this paper i.e. Section A, B and C.
<u>Attempt Section-A on the same paper and return it to the Superintendent within the given time.</u>
No marks will be awarded for Cutting, Erasing or Overwriting. Marks of identification will lead to UFM case, Mobile Phone etc are not allowed in the examination hall.

Time Allowed: 20 minutes

Marks: 18

Q-I Write the correct option i.e. A, B, C or D in the empty box provided opposite to each part.

i. Range is the ....
   A. Mid Point B. L – S C. $l_2 – l_1$ D. None of these

ii. $\sum (x - 2) = ?$
   A. $n\bar{x} + 2$ B. $2n\bar{x} – 2$ C. $\sum x – 2n$ D. None of these

iii. Mode = 3 (Md – ?)
   A. $\bar{x}$ B. $2\bar{x}$ C. $n\bar{x}$ D. None of these

iv. Class boundaries of 2.5 – 3.5 is
   A. 2.45 – 3.55 B. 2.4 – 3.6 C. 20 – 40 D. None of these

v. Median of 2,3,7,5,13,10 is ......
   A. 5 B. 7 C. 6 D. 5.5

vi. Var (3x – 2) = ?
   A. 9 Var (x) – 2 B. 9 Var (x) C. Var (x) D. 3 Var (x)

vii. Coefficient of variation is infinite if ....is zero.
   A. S.D B. Variance C. $\bar{x}$ D. Both A and B

viii. If $b_2 > 3$ then the distribution is ....
   A. Leptokurtic B. Mesokurtic C. Platykurtic D. None of these

ix. A chain index number provides comparison between.......
   A. First and last year B. Year to year C. First year and second year D. None of these

x. $^nC_r = ?$
   A. $\dfrac{n!}{(n-r)!}$ B. $\dfrac{n!}{(n!)(n-r)!}$ C. $\dfrac{n!}{(r!)(n-r)!}$ D. $\dfrac{n!}{r!}$

xi. Addition law for not mutually exclusive events $P (A \cup B) = P (A) + P (B) – ?$
   A. $P (A / B)$ B. $P (B / A)$ C. $P (A \cap B)$ D. $P (A \cup B)$

xii. When a perfect die is rolled, the probability of even numbers is...
   A. 0 B. $\dfrac{1}{3}$ $\dfrac{1}{2}$ D. 1

xiii. The mean of uniform distribution $\{ -1, 1 \}$ is ......
   A. $\dfrac{1}{2}$ B. 2 C. 0 D. 1

xiv. If $E (x) = \dfrac{2}{3}$ and $E (x^2) = \dfrac{8}{9}$ then S.D is ....
   A. $\dfrac{4}{9}$ B. $\dfrac{9}{4}$ C. $\dfrac{2}{3}$ D. $\dfrac{1}{2}$

xv. The number of eggs lay each month by a hen is.......
   A. Continuous random variable B. Discrete random variable C. Random experiment D. None of these

xvi. If x has a binomial distribution with n = 9 and $P = \dfrac{2}{3}$ then its variance will be equal to ....
   A. 6 B. 2 C. 3 D. 4

xvii. Mean of the binomial distribution is ....
   A. npq B. $\sqrt{npq}$ C. np D. $\sqrt{np}$

xviii. The mean of the binomial distribution is greater than the ...
   A. S.D B. Variance C. P D. n

STATISTICS

Inter Part – I

(Fresh / Reappear)

Note: ...   s 2 Hours and 40 minutes.

Section – B

Marks: 40

Q-II   A ... ... TEN parts. Each part carries FOUR marks.

1. Explain the difference between parameter and statistic.

2. The following table shows the population of provinces and FATA. Construct pie chart to compare the population of provinces and FATA.

Name	Sindh	KPK	Balochistan	FATA	Punjab
Population in Millions	26	23	8	4	65

3. By taking $x = -2, -1, 0, 1, 2, 3$. Prove or disprove the following Relations.

(i) $\Sigma(x - A.M)^2 = 0$ (ii) $\Sigma(x - 2) = A.M$

4. If C.V = 50.9 and variance = 16, what is mean?

5. Compute the price relative taking 1988 as base and link relatives from the following.

Year	1988	1989	1990	1991	1992	1993	1994	1995	1996
Price of Wheat	5	5.5	6	6.5	7	7.5	ι	8.5	9

6. How many distinct permutations can be formed from all the letters of the word "SOCIOLOGICAL"?

7. Find the value of "P" Let $P(A) = 0.5$ and $P(A \cup B) = 0.8$

a. When A and B are mutually exclusive events   b.   When A and B are mutually independent events.

8. Calculate the mean, median and mode from the following data.

Score In Quiz	6	7	8	9	10	11	12
No. of Students	3	6	9	13	8	5	6

9. Find the Range and its coefficient from the given data.   12, 6, 7, 3, 15, 18, 24, 5, 10.

10. The probability distribution of a random variable X is given in the table below.

X	1	2	3	4	5
P(x)	0.1	0.2	Y	0.2	0.1

Find the value of y. And also the distribution of x.

11. A continuous random variable X that can assume values between $x = 2$ and $x = 5$ has a density function given by $f(x) = 2(1 + x) / 27$ Find $P(x > 4)$ and $P(2 < x < 3)$.

12. Find the probabilities of the binomial experiment defined by $n = 6$ and $p = 0.5$.

13. The mean and variance of a binomial distribution are 42 and 12.6 respectively. Find P and n.

Section – C

Marks: 27

Note :   Attempt any THREE questions. All questions carry equal marks.

Q-III   Prove that A.M > G.M > H.M from the following data.

Marks	0 – 10	10 – 20	20 – 30	30 – 40
No of Students	8	12	20	4

Q-IV   The first four moments of a distribution about the value $x = 4$ of the variables are -1.5, 17, -30 and 108. Find the moments about mean and also the shape and skewness of the distribution.

Q-V   In a single throw of a pair of fair dice, Find the probability of getting:

(I).   Even number on 1st die and 4 on 2nd die.   (II)   A total of greater than 5.   (III)   A total of 6 or 12.

(Iv)   At least 3.   (v)   Total different from 5.

Q-VI   Let x denotes the number of positions held previously by a job applicant. The probability function of x is

x	-2	-1	0	1	2	3
f(x)	0.1	0.1	0.2	2K	0.3	K

Find the value of K and calculate mean and standard deviation.