Roll Number	PR XII (01) 19	Superintendent
In Figures: _____	**STATISTICS**	Signature / Stamp:
In Words: _____	- Inter Part-II -	
	(Fresh / Reappear)	
	Fic No. _____ (For Board's Office use only)	

STATISTICS

Inter Part-II

(Fresh / Reappear)

Fic No. _____ (For Board's Office use only)

Time Allowed: 3 Hours **Marks:** 85

Note: There are THREE sections in this paper i.e. Section **A, B** and **C**.
Attempt Section-A on the same paper and return it to the Superintendent within the given time.
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.	Normal distribution is a limiting form of..... distribution.	A.	Binomial	B.	Passion	C.	Geometric	D.	None of these	A
ii.	Range of normal distribution is.....	A.	0 to +1	B.	-1 to +1	C.	$-\infty$ to $+\infty$	D.	None of these	C
iii.	Mean deviation for normal distribution is approximately..... of its standard deviation.	A.	5/4	B.	4/5	C.	½	D.	None of these	B
iv.	The whole aggregate or universe is called.....	A.	Population	B.	Sample	C.	Parameter	D.	None of these	A
v.	Numerical value calculated from population is called.....	A.	Statistic	B.	Parameter	C.	Sample	D.	None of these	B
vi.	As sample size increases, standard error of the mean.....	A.	Increases	B.	Decreases	C.	Remains same	D.	Sufficiency	B
vii.	There are .....parts of statistical estimation.	A.	1	B.	2	C.	3	D.	None of these	B
viii.	As compared to normal distribution, t-distribution is.....	A.	Flatter	B.	More peaked	C.	Symmetric	D.	None of these	B
ix.	$\sum(y-\hat{y})=$.....	A.	1	B.	2	C.	0	D.	None of these	C
x.	Range of correlation coefficient is.....	A.	0 to 1	B.	-1 to 0	C.	-1 to +1	D.	None of these	C
xi.	What kind of relationship exists if Y decreases as X increases?	A.	Inverse	B.	Direct	C.	No relationship	D.	None of these	A
xii.	Relationship b/w two categorical variables is called.....	A.	Correlation	B.	Regression	C.	Association	D.	None of these	C
xiii.	Statistical ranking is.....	A.	Nominal	B.	Ordinal	C.	Both A and B	D.	None of these	C
xiv.	For a 3 × 4 contingency table the degree of freedom for the Pearson's X^2 test is	A.	3	B.	4	C.	6	D.	12	C
xv	The smooth and regular movement is called	A.	Secular trend	B.	Irregular movement	C.	Cyclical movement	D.	None of these	A
xvi.	One kilobytes (KB) has.....	A.	1024 bytes	B.	1000 bytes	C.	1024 bits	D.	1000 bits	A
xvii.	Operating system is.....	A.	DOS	B.	FORTRAN	C.	BASIC	D.	All these	D
xviii	The person who write software for computer is.....	A.	User	B.	Programmer	C.	Operator	D.	Controller	B

STATISTICS

Inter Part – II
(Fresh / Reappear)

Note: Time allowed for Section – B and Section – C is 2 Hours and 40 minutes.

Section – B

Marks: 40

Q-II Answer any TEN parts. Each part carries FOUR marks.

1. Define normal distribution.
2. Find area above 1.96 i.e $P[Z > 1.96]$
3. Define stratified random sampling.
4. Explain sample and population.
5. Explain the concept of unbaisedness.
6. If $n = 36$, $\bar{X} = 18$, $S = 3$, Find 99% confidence interval for μ.
7. Write down the properties of regression lines.
8. If $n = 10$, $\Sigma x = 35$, $\Sigma y = 697$, $\Sigma x^2 = 133$, $\Sigma y^2 = 500585$ and $\Sigma xy = 2554$. Find correlation coefficient.
9. Compute Spearman's rank correlation coefficient ρ.

Lemonades	A	B	C	D	E	F	G	H	I
Judge 1	7	1	3	2	8	5	9	6	4
Judge 2	9	4	1	3	7	5	6	8	2

10. What is a time series? What are its main components?
11. Describe the difference between an operating system and application software.
12. Rank the given data: 23,36,24,25,33,36,40,25,27,19,25,33.
13. Convert the given into the required base: (i) $(412)_{10} = (?)_{16}$ (ii) $(1101001011)_2 = (?)_{16}$

Section – C

Marks: 27

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

Q-III A finite population consists of the number 2,2,4,6 and 5 written on 5 tag of the different colours. Draw all possible samples of size 2 without replacement, from this population and find their means. Construct sampling distribution of the sample mean and verify that $\mu_{\bar{X}} = \mu$ and $\sigma_{\bar{X}} = \frac{\sigma}{\sqrt{n}}\left(\frac{N-n}{N-1}\right)$

Q-IV An ice cream company claimed that its product contained 500 calories per pint. To test the claim 25 one – paint containers were analyzed, giving $\bar{X} = 507$ calories and $S = 22$ calories. Test the claim at 01% level of significance.

Q-V Given the data:

X	1	5	3	2	1	1	7	3
Y	6	1	0	0	1	2	1	5

Find regression line Y on X and hence predict Y, if X = 10.

Q-VI Fit a second degree parabola to the following data:

Year	1993	1994	1995	1996	1997	1998	1999	2000
Production	80	90	92	83	94	99	92	110