




Serial No. Of the Answer Book 
 Roll No. (in figure) _____

(In Words) _____

Superintendent Seal & Signature

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STATISTICS - II

Total Time: 3 Hours

Max: Marks: 85

Note: There are THREE Sections of this Paper i.e. A, B and C, attempt each according to the given instructions.

Time: 20 Minutes

SECTION-A

Marks: 18

Note: Attempt all parts of Section - A. Section -A must be return to the superintendent after 20 minutes even if you have not attempted any question. Overwriting/ defacing/Cutting etc is prohibited in Section-A and no credit will be given to such answer.

- I. Write the correct option i.e. A/B/C/D in the empty boxes.
 - i. The normal distribution has _____ parameter .
 - (A) 1
 - (B) 2
 - (C) 3
 - (D) 4
 - ii. The random variable "Z" is always normal with mean and variance _____.
 - (A) (1,0)
 - (B) (2,1)
 - (C) (0,1)
 - (D) (0,2)
 - iii. A numerical quantity calculated from population is called _____.
 - (A) Mean
 - (B) Parameter
 - (C) Statistic
 - (D) Sample
 - iv. As the sample size increases the standard error of the mean _____.
 - (A) Increases
 - (B) Decreases
 - (C) Remains the same
 - (D) None of these
 - v. The standard error of the mean $\bar{x} =$ _____.
 - (A) $\frac{\delta^2}{n}$
 - (B) $\frac{\delta}{n}$
 - (C) $\frac{\delta}{\sqrt{n}}$
 - (D) None of these
 - vi. The sample mean is _____ estimator of population mean .
 - (A) Mean
 - (B) A good
 - (C) An unbiased
 - (D) Biased
 - vii. As compared to normal distribution t- distribution is _____.
 - (A) Negatively skewed
 - (B) Symmetric
 - (C) More peaked
 - (D) Flatter
 - viii. A 95% confidence interval for the population mean is of the form _____.
 - (A) $\bar{x} \pm 1.96 \frac{\delta}{\sqrt{n}}$
 - (B) $\bar{x} \pm 2.58 \frac{\delta}{\sqrt{n}}$
 - (C) $\bar{x} \pm 1.28 \frac{\delta}{\sqrt{n}}$
 - (D) $\bar{x} \pm 1.645 \frac{\delta}{\sqrt{n}}$
 - ix. α is the probability of rejecting H_0 when H_0 is _____.
 - (A) True
 - (B) False
 - (C) β
 - (D) None of these
 - x. For a 3×4 contingency table the degrees of freedom for Pearson's χ^2 test is _____.
 - (A) 3
 - (B) 4
 - (C) 6
 - (D) 12
 - xi. Spearman's rank correlation coefficient " ρ " lies between _____.
 - (A) [-1, 1]
 - (B) [0, 1]
 - (C) [0, ∞]
 - (D) [$-\infty$, $+\infty$]
 - xii. Movements of irregular nature due to chance events such as flood, strikes earthquakes, wars are called _____.
 - (A) Random movements
 - (B) Cyclical movements
 - (C) Seasonal movements
 - (D) None of these
 - xiii. In a regression line the intercept of the line is _____.
 - (A) b_0
 - (B) b_1
 - (C) Zero
 - (D) None of these
 - xiv. The smooth & regular moment is called _____.
 - (A) Secular trend
 - (B) Cyclical
 - (C) Irregular moment
 - (D) None of these
 - xv. If no relationship exists between the variables, there is _____ correlation b/w them.
 - (A) Positive
 - (B) Negative
 - (C) No
 - (D) None of these
 - xvi. A population consists of 6 elements, the number of possible sample of size 3 without replacement _____.
 - (A) 9
 - (B) 20
 - (C) 36
 - (D) None of these
 - xvii. One gigabyte (GB) is equal to _____.
 - (A) 100 MB
 - (B) 1000 MB
 - (C) 1024 MB
 - (D) 1024 KB
 - xviii. The processor is the _____ of computer.
 - (A) Ear
 - (B) Brain
 - (C) CPU
 - (D) None of these

Note: Time allowed for section B and C is 2 hours and 40 minutes.

Marks: 40

SECTION "B"

II. Attempt any TEN Parts out of the following. Each Part carries equal marks.

- i. Explain Sampling & Non-Sampling errors.
- ii. Explain Probability & Non Probability sampling.
- iii. Differentiate between simple hypothesis & composite hypothesis.
- iv. If $n_1 = n_2 = 25$ and $\sigma_1 = \sigma_2 = 0.20$, $\bar{x}_1 = 15.95$, $\bar{x}_2 = 15.67$ Find 95% confidence interval for $(\mu_1 - \mu_2)$
- v. Explain the concept of Un-biasness.
- vi. Differentiate between the nominal & ordinal scale.
- vii. What is a Time Series? What are its main components?
- viii. Explain the concept of correlation Co-efficient between two variables.
- ix. What is meant by simple random sampling & stratified random sampling.
- x. What is a Scatter diagram? Explain the meaning of regression of Y on X & X on Y .
- xi. Explain the function of CPU.
- xii. Find the probability: (i) $p(z \leq -2.13)$ (ii) $p(z \leq -2.33)$
- xiii. Define scatter diagram.

SECTION "C"

Marks: 27

Note: Attempt any THREE questions of the following. Each question carries equal Marks.

- III. Let X is a normal random variable with mean 46 & standard deviation 4. Find the following Probabilities.
(i) $p(x \geq 54)$ (ii) $p(48 \leq X \leq 52)$
- III. An Ice-cream company claimed that its product contained 500 calories per point. To test this claim 25 one pint containers were analyzed giving $\bar{x} = 507$ calories & $s = 22$ calories. Test the claim at 1% level of significance $H_0: \mu = 500$ and $H_1: \mu \neq 500$
- V. Gymnast was ranked by two judges in following table. Calculate "Spearman's rank correlation".
First Judge : 4 5 8 3 1 2 7 6
Second Judge : 5 4 6 1 2 3 7 8
- VI. Calculate the 4-quarter centered moving averages for the given data:

Years	I	II	III	IV
2007	88	55	40	42
2008	89	67	56	60
2009	93	87	67	69