Warning:- Please write your Roll No. in the space provided and sign. Roll No----------------
(Inter Part – II)   (Session 2020 – 22 to 2022– 24)   Sig. of Student ----------------
Statistics   (Objective)   Paper (II)
Time Allowed:- 20 minutes   **PAPER CODE 4181**   Maximum Marks:- 17

Note:- You have four choices for each objective type question as A, B, C and D. The choice which you think is correct; fill that circle in front of that question number. Use marker or pen to fill the circles. Cutting or filling two or more circles will result in zero mark in that question. Write PAPER CODE, which is printed on this question paper, on the both sides of the Answer Sheet and fill bubbles accordingly, otherwise the student will be responsible for the situation. Use of Ink Remover or white correcting fluid is not allowed.

Q. 1

1. In a Normal Distribution $\mu = 100$, $\sigma^2 = 49$, the median is
   (A) 10   (B) 7   (C) 49   (D) 100

2. 2nd moment about mean is called
   (A) Mean   (B) Variance   (C) Zero   (D) Standard Error

3. The mean of Standard Normal Distribution is
   (A) Zero   (B) 1   (C) ∞ (D) π

4. The Simple random sampling is
   (A) Non- Probability   (B) Non- Random   (C) Probability   (D) None of these
       Sampling   Sampling   Sampling

5. In Sampling with replacement, the number of possible samples are
   (A) $\begin{smallmatrix} N \\ C \\ n \end{smallmatrix}$ (B) $(N)^n$ (C) $(n)^N$ (D) $^N P_n$

6. The standard error of mean for $\sigma^2 = 25$, $n = 5$ is
   (A) 5   (B) $\sqrt{5}$ (C) $\frac{1}{5}$ (D) 1

7. $1 - \alpha$ is also called
   (A) Size of test   (B) Power of test   (C) Level of   (D) Confidence
                                             Significance   Coefficient

8. t – distribution is used when
   (A) Population is   (B) σ is unknown   (C) Sample is small   (D) All of these
       normal

9. Which of the following cannot be H_o ?
   (A) $\mu \le 100$ (B) $\mu \ge 100$ (C) $\mu \ne 100$ (D) $\mu = 100$

10. Another name of independent variable is
    (A) Regressor   (B) Regressand   (C) Predictand   (D) Response

11. In Regression equation $\hat{y} = 0.72 - 1.33x$, the slope of Line is
    (A) 0.72   (B) 1.33   (C) -1.33   (D) $-1.33x$

12. Which of the following can never be taken as Coefficient of correlation?
    (A) 0   (B) -0.99   (C) 0.05   (D) $\sqrt{5}$

13. For a 4×4 Contingency table, the degree of freedom will be
    (A) 16   (B) 6   (C) 9   (D) 8

14. In converting the scores: 50, 68, 25, 40, 80 to ranks (assign 1 to highest) the rank of 50 is
    (A) 3   (B) 1   (C) 2   (D) 5

15. The method of moving averages is used to find the
    (A) Seasonal variation   (B) Secular Trend   (C) Cyclical   (D) Irregular
                                                     fluctuations   movements

16. Which one is better method for measuring secular trend.
    (A) Free hand curve   (B) Semi - Average   (C) Moving Average   (D) Least Square
                             Method   Method   Method

17. 01 Byte =
    (A) 8 bits   (B) 10 bits   (C) 4 bits   (D) 6 bits

1224 (Inter Part-II)

(Session 2020 – 22 to 2022 – 24)

Statistics   (Subjective)

Time Allowed: 2.40 hours   SECTION ---------------- I   Paper (II)

Maximum Marks: 68

2.   Write short answers of any eight parts. $8 \times 2 = 16$

(i) What is the value of maximum ordinate of Standard Normal distribution? (ii) In Normal distribution, Mean = 40. Find Median and Mode. (iii) If in Normal distribution, Q.D = 10.1175, what will be the value of σ. (iv) In a Normal distribution M.D = 16. Find the value of σ^2. (v) Define Standard Normal Distribution. (vi) Define unbiasedness. (vii) Explain the term "Bias". (viii) A sample of 64 from a population, if $\sigma = 32$. Find $E(\delta^2)$. Where δ^2 is an unbiased estimator. (ix) Define confidence coefficient. (x) Define Simple hypothesis. (xi) What is data storage? (xii) Write down the different types of computers.

3.   Write short answers of any eight parts. $8 \times 2 = 16$

(i) Write at least two advantages of Sampling. (ii) Discuss Sampling frame. (iii) Make all possible samples of size 3 drawn without replacement from a population consists of 1,4,7, and 10. (iv) What is sampling unit? (v) Name at least two types of probability sampling. (vi) Discuss the term Accuracy. (vii) Explain independent variable in regression. (viii) Write any two properties of regression coefficient (b). (ix) Rearrange the regression line y on x $8x - 10\hat{y} = -66$ and identify slope. (x) Define negative correlation. (xi) If $r = 0.48$, $S_y = 18.75$, $S_{xy} = 36$ then find S_x. (xii) Describe covariance.

4.   Write short answers of any six parts. $6 \times 2 = 12$

(i) Distinguish between expected & observed frequencies. (ii) What is chi-square? Interpret $\chi^2 = 0$. (iii) Find (B) if (AB) = 30 & (αB)=20. (iv) Define time series. Give its 2 examples from real life. (v) Which are four methods of computing secular trend? (vi) Define irregular variation. Give its two examples. (vii) Write two advantages of Semi Average Method. (viii) Distinguish between straight line and parabola. (ix) Write normal equations of a straight line $\hat{Y} = a + bX$

SECTION ------------ II

Note: Attempt any three questions. Each question carries equal marks. $(8 \times 3 = 24)$

5. (a) In a normal distribution the lower and upper quartiles are 18 and 26, respectively. Find it's μ , σ and MD.

   (b) If X is normally dist. With parameters μ and σ , find the area under the curve between

   (i) $(\mu - \sigma)$ and $(\mu + \sigma)$ (ii) μ and $(\mu + 2\sigma)$

6. (a) A population consists of values: 3, 5 and 7. Take all possible samples of size 2 with replacement from this population and verify that (i) $\mu_{\bar{x}} = \mu$ (ii) $\sigma_{\bar{x}}^2 = \dfrac{\sigma^2}{n}$

   (b) Find the proportion of even numbers of the samples of size 2 without replacement from the population 3,4,5,6 and 7 verify that (i) $\mu_{\hat{p}} = P$ (ii) $Var_{(\hat{p})} = \dfrac{pq}{n} \times \dfrac{N-n}{N-1}$

7. (a) A random sample of size 36 is taken from a normal population with variance $\sigma^2 = 16$. If the mean of the sample is 45.6, find 99% confidence limits for population mean.

   (b) A sample of size 100 is taken from a population whose variance is 25. If sample mean is 50. Test $H_o : \mu = 60$ vs $H_1 : \mu \neq 60$ at $\alpha = 0.05$

8. (a) Find out coefficient of correlation from the following data.

x	2	4	5	6	8	11
y	18	15	11	8	7	5

   (b) The following data were obtained from a sample of 10 Men about height and weight. $\overline{X} = 70$, $\bar{y} = 155$, $\Sigma(X - \overline{X})^2 = 120$, $\Sigma y^2 = 240550$, $\Sigma(X - \overline{X})(y - \bar{y}) = 150$

   Compute:- (i) Regression coefficient of y on X. (ii) Co-variance between X and y.

9. (a) Test the association between the subject and results from the following data

Subject	Pass	Fail
Maths	60	40
Stats	100	80
Eco	120	100

   (b) Fit $Y = a + bX$ from the following results for the year 1948 to 58 both inclusive $\Sigma X = 0$, $\Sigma Y = 438.9$, $\Sigma X^2 = 110$, $\Sigma XY = -84.4$ Find the trend values of Y as well.

2019 (S)   Roll No: _____

INTERMEDIATE PART-I (11th CLASS)

STATISTICS PAPER-I (NEW SCHEME)

TIME ALLOWED: 2.40 Hours   **SUBJECTIVE**   MAXIMUM MARKS: 68

NOTE: Write same question number and its part number on answer book, as given in the question paper.

SECTION-I

2.   **Attempt any eight parts.** $8 \times 2 = 16$

(i)   Explain any two uses of Statistics.

(ii)   Write sources of Secondary data. (any four)

(iii)   Define Weighted Mean.

(iv)   Define Quartile.

(v)   If $n = 10$ and $\bar{X} = 4$ then find $\sum x$.

(vi)   Write any two properties of a good average.

(vii)   Calculate geometric mean for 0, 2, 4, 6 and 10.

(viii)   Define Consumer Price Index Number.

(ix)   Define Laspeyre's Index Number.

(x)   Define the Chain Indices.

(xi)   Define Simple Price Relative.

(xii)   If Paasche's Index Number is 105.72 and Laspeyre's Index Number is 107.22, then find Fisher's Index Number.

3.   **Attempt any eight parts.** $8 \times 2 = 16$

(i)   Define a Frequency Distribution.

(ii)   Differentiate between Histogram and Historigram.

(iii)   Define the Mean Deviation.

(iv)   If $Q_1 = 20$ and Quartile deviation $= 5$. Find Q_3

(v)   Define the Coefficient of Variation.

(vi)   Name the distribution $\beta_1 = 0$ and $\beta_2 = 3$.

(vii)   Define the Compound events.

(viii)   What is the difference between dependent and independent events?

(ix)   Suppose that $P(A) = \dfrac{1}{4}$, $P(B) = \dfrac{1}{3}$ and $P(A \cup B) = \dfrac{1}{2}$. Determine $P(A \cap B)$.

(x)   Define the Sure Events.

(xi)   Define the Skewness.

(xii)   If $n = 10$, $\sum X = 40$ and $S.D = 2$. Find coefficient of variation.

4.   **Attempt any six parts.** $6 \times 2 = 12$

(i)   Define Probability distribution for a discrete random variable.

(ii)   What is a Random Variable?

(iii)   State the properties of Probability Density Function.

(iv)   Given a random variable "X" with $E(x) = 200$ and $S.D(x) = 5$. Find $E(X^2)$

(v)   Given a probability density function: $f(x) = cx$ for $0 < x < 2$ and zero otherwise. Find the value of "c".

(vi)   Explain the concept of Bernoulli trials.

(vii)   If a binomial distribution has mean equal to 2.4 and $S.D = 1.2$, then find the value of "n".

(viii)   Given: $N = 10$, $n = 4$ and $K = 7$. Find $S.D(X)$.

(ix)   Define Hypergeometric experiment.

P.T.O