

INTERMEDIATE PART-II (12th CLASS)**STATISTICS PAPER-II (NEW SCHEME) (SESSION 2015-2017)**

TIME ALLOWED: 2.40 Hours

SUBJECTIVE

MAXIMUM MARKS: 68

**NOTE: - Write same question number and its part number in answer book,
as given in the question paper.****SECTION-I****2. Attempt any eight parts.****8 × 2 = 16**

- (i) Discuss the importance of normal distribution.
- (ii) In a normal distribution σ^2 is 15 find the value of β_2 .
- (iii) Mean deviation of normal distribution is 16. Find value of standard deviation.
- (iv) In a normal distribution $\mu = 20$ and $\sigma = 5$ find mode and μ_3 .
- (v) In a standard normal distribution show that $Q_3 = Q.D.$
- (vi) Differentiate between estimation and testing of Hypothesis.
- (vii) Define unbiasedness.
- (viii) What you understand by point estimation?
- (ix) Define composite Hypothesis.
- (x) Differentiate between Type I error and Type II error.
- (xi) What does "COBOL" stand for?
- (xii) Differentiate between RAM and ROM.

3. Attempt any eight parts.**8 × 2 = 16**

- (i) Define Population.
- (ii) What do you mean by Parameter?
- (iii) Explain the meaning of Census.
- (iv) What is Probability Sampling?
- (v) Explain Sample Survey.
- (vi) Define Sampling Units.
- (vii) Define Regression Analysis.
- (viii) Define Terms "Regression" and "Correlation" with examples
- (ix) What is Regressor?
- (x) Explain Curve Fitting.
- (xi) What is Least Square fit or Curve?
- (xii) Determine regression equation, $\hat{y} = a + bx$ if $n = 10, \Sigma x = 20$

$$\Sigma y = 260, \Sigma xy = 3400, \Sigma x^2 = 3144$$

4. Attempt any six parts.**6 × 2 = 12**

- (i) Differentiate between Attribute and Variable.
- (ii) Define Dichotomy.
- (iii) Define Coefficient of Association.
- (iv) Write down the formula of spearman's rank Correlation Coefficient.
- (v) Define Time Series.
- (vi) Explain Semi Average Method.
- (vii) Write down the Normal Equations of second Degree Parabola.
- (viii) Enlist the different methods of Measuring Secular Trend.
- (ix) Give four examples of Irregular Variation.

SECTION-II**NOTE: - Attempt any three questions.**

- 5.(a) The mean and S.D of a normal distribution are 100 and 20 respectively. Find
 (i) Area between 65 and 85 (ii) Two points having 98% of the area between them. 4
- (b) A die is tossed 120 times, Find the probability that face 4 turns up
 (i) 18 times or less (ii) Exactly 15 times assuming the die is fair. 4
- 6.(a) A population consists of three values 2, 4 and 6. (i) Take all possible samples of size 2, which can be drawn with replacement from this population and find means of these samples. (ii) Make a frequency distribution of the sample mean and show that the variance of this distribution is equal to the population variance divided by the sample size. 4
- (b) Given $P_1 = \frac{1}{2}$, $P_2 = \frac{1}{3}$, $N_1 = 3$, $n_1 = 2$, $N_2 = 3$, $n_2 = 2$. Find $E(\hat{P}_1 - \hat{P}_2)$ and $S.E.(\hat{P}_1 - \hat{P}_2)$ when sampling is done without replacement. 4
- 7.(a) Compute a 90% confidence interval estimate for the population mean if
 $n = 36$, $\Sigma x = 5400$ and $\Sigma(X - \bar{X})^2 = 1296$. 4
- (b) A manufacturing company making auto mobile tires claims that the average life of its product is 35000 miles. A random sample of 16 tires was selected and it was found that mean life 34000 miles with a standard deviation $s = 2000$ miles. Test hypothesis $H_0: \mu = 35000$ against $H_1: \mu < 35000$ at $\alpha = 0.05$. 4
- 8.(a) Find regression coefficients of X on Y and of Y on X for the following information. 4
 $n = 10$ $\Sigma(X - \bar{X})^2 = 170$
 $\Sigma(Y - \bar{Y})^2 = 140$
 $\Sigma(X - \bar{X})(Y - \bar{Y}) = 92$
- (b) Find correlation coefficient from the following data:- 4
- | | | | | | |
|---|----|----|----|----|----|
| X | 21 | 22 | 23 | 24 | 25 |
| Y | 25 | 24 | 23 | 22 | 26 |
- 9.(a) From the following table, test the hypothesis that the flower color is independent of the flatness of leaf. Use $\alpha = 0.05$ 4
- | | Flat leaves | Lean leaves |
|--------------|-------------|-------------|
| White Flower | 99 | 36 |
| Red Flower | 20 | 5 |
- (b) Compute 3 years moving average from the following data:- 4
- | Years | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 |
|--------|------|------|------|------|------|------|------|
| Values | 6.2 | 7.8 | 8.3 | 9.3 | 8.6 | 7.8 | 8.1 |

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. Attempt as many questions as given in objective type question paper and leave others blank. No credit will be awarded in case BUBBLES are not filled. Do not solve question on this sheet of OBJECTIVE PAPER.

Q.No.1

- (1) Normal distribution is:-
 (A) U-shaped (B) J-shaped (C) Uniform (D) Bell shaped
- (2) In normal distribution:-
 (A) $Q_1 = \mu - 0.6745\sigma$ (B) $Q_1 = \mu + 0.6745\sigma$ (C) $Q_1 = \mu - \sigma$ (D) None
- (3) Second moment about mean is called:-
 (A) Mean (B) Skewness (C) Variance (D) Standard deviation
- (4) Sample is a part of the:-
 (A) A sampling (B) Population (C) Unit (D) Error
- (5) If $\mu_{\bar{x}} = 5$ then μ is:-
 (A) 5 (B) 2.5 (C) 4 (D) 3
- (6) A measure of population is called:-
 (A) Statistic (B) Random (C) Parameter (D) Sampling
- (7) Level of confidence is denoted by:-
 (A) $1 - \alpha$ (B) $1 - \beta$ (C) α (D) β
- (8) A null hypothesis is denoted by:-
 (A) H_0 (B) H_1 (C) H_a (D) H_c
- (9) α is known as:-
 (A) Level of acceptance (B) Level of rejection (C) Level of significance (D) Power of test
- (10) A simple linear regression model contains:-
 (A) One variable (B) Two variables (C) Three variables (D) Four variables
- (11) Correlation is said to be positively perfect if:-
 (A) $r_{xy} = r_{yx}$ (B) $r = 0.98$ (C) $r = 0$ (D) $r = 1$
- (12) The regression equation always passes through:-
 (A) (x, y) (B) (a, b) (C) (\bar{x}, \bar{y}) (D) None
- (13) Two attributes A and B are positively associated if:-
 (A) $\frac{(A)(B)}{n} \neq (AB)$ (B) $\frac{(A)(B)}{n} > (AB)$ (C) $\frac{(A)(B)}{n} < (AB)$ (D) None
- (14) Qualitative variable is also called:-
 (A) Frequency (B) Classes (C) Attributes (D) Order
- (15) Time series graph is called:-
 (A) Historigram (B) Histogram (C) Polygon (D) None
- (16) Secular trend is called:-
 (A) Short term variation (B) Fixed (C) Long term variation (D) None
- (17) The base of binary system:-
 (A) 0 (B) 1 (C) 4 (D) 2

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. Attempt as many questions as given in objective type question paper and leave others blank. No credit will be awarded in case BUBBLES are not filled. Do not solve question on this sheet of OBJECTIVE PAPER.

Q.No.1

- (1) Qualitative variable is also called:-
 (A) Frequency (B) Classes (C) Attributes (D) Order
- (2) Time series graph is called:-
 (A) Historigram (B) Histogram (C) Polygon (D) None
- (3) Secular trend is called:-
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- (4) The base of binary system:-
 (A) 0 (B) 1 (C) 4 (D) 2
- (5) Normal distribution is:-
 (A) U-shaped (B) J-shaped (C) Uniform (D) Bell shaped
- (6) In normal distribution:-
 (A) $Q_1 = \mu - 0.6745\sigma$ (B) $Q_1 = \mu + 0.6745\sigma$ (C) $Q_1 = \mu - \sigma$ (D) None
- (7) Second moment about mean is called:-
 (A) Mean (B) Skewness (C) Variance (D) Standard deviation
- (8) Sample is a part of the:-
 (A) A sampling (B) Population (C) Unit (D) Error
- (9) If $\mu_{\bar{x}} = 5$ then μ is:-
 (A) 5 (B) 2.5 (C) 4 (D) 3
- (10) A measure of population is called:-
 (A) Statistic (B) Random (C) Parameter (D) Sampling
- (11) Level of confidence is denoted by:-
 (A) $1 - \alpha$ (B) $1 - \beta$ (C) α (D) β
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- (14) A simple linear regression model contains:-
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- (16) The regression equation always passes through:-
 (A) (x, y) (B) (a, b) (C) (\bar{x}, \bar{y}) (D) None
- (17) Two attributes A and B are positively associated if:-
 (A) $\frac{(A)(B)}{n} \neq (AB)$ (B) $\frac{(A)(B)}{n} > (AB)$ (C) $\frac{(A)(B)}{n} < (AB)$ (D) None

INTERMEDIATE PART-II (12th CLASS)

STATISTICS PAPER-II (NEW SCHEME) (SESSION 2015-2017)

TIME ALLOWED: 20 Minutes

OBJECTIVE

MAXIMUM MARKS: 17

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Q.No.1

- (1) A null hypothesis is denoted by:-
 (A) H_0 (B) H_1 (C) H_2 (D) H_n
- (2) α is known as:-
 (A) Level of acceptance (B) Level of rejection (C) Level of significance (D) Power of test
- (3) A simple linear regression model contains:-
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- (16) A measure of population is called:-
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- (17) Level of confidence is demoted by:-
 (A) $1 - \alpha$ (B) $1 - \beta$ (C) α (D) β

INTERMEDIATE PART-II (12th CLASS)

STATISTICS PAPER-II (NEW SCHEME) (SESSION 2015-2017)

TIME ALLOWED: 20 Minutes

OBJECTIVE

MAXIMUM MARKS: 17

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Q.No.1

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 (A) 5 (B) 2.5 (C) 4 (D) 3
- (2) A measure of population is called:-
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- (3) Level of confidence is denoted by:-
 (A) $1 - \alpha$ (B) $1 - \beta$ (C) α (D) β
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- (16) Second moment about mean is called:-
 (A) Mean (B) Skewness (C) Variance (D) Standard deviation
- (17) Sample is a part of the:-
 (A) A sampling (B) Population (C) Unit (D) Error

INTERMEDIATE PART-II (12th CLASS)**STATISTICS PAPER-II (OLD SCHEME) (SESSION 2012-2014)**

TIME ALLOWED: 3.10 Hours

SUBJECTIVE

MAXIMUM MARKS: 83

NOTE: - Write same question number and its part number in answer book, as given in the question paper.**SECTION-I****2. Attempt any eight parts.****8 × 2 = 16**

- (i) Elaborate the term normal distribution.
- (ii) Write down four properties of normal distribution.
- (iii) In a normal distribution $\mu_1 = 243$ find μ_2, μ_3 .
- (iv) What is the relation between (a) M.D and S.D (b) Q.D and S.D, in normal distribution?
- (v) What is the density function of standard normal distribution?
- (vi) What is meant by Unbiasedness?
- (vii) Explain the term estimation.
- (viii) Differentiate between type - I and type - II errors.
- (ix) Define Alternative Hypothesis.
- (x) Explain the term power of test.
- (xi) Differentiate between RAM and ROM.
- (xii) Express the term hardware in computer.

3. Attempt any eight parts.**8 × 2 = 16**

- (i) Write two advantages of Sampling.
- (ii) Distinguish between Parameter and Statistic.
- (iii) When the simple random Sampling is used?
- (iv) Explain the difference Census and Sampling.
- (v) Write the qualities of a good Sampling Frame.
- (vi) Define the Term Statistic.
- (vii) Define the Word Regressor.
- (viii) Describe the relationship between Correlation and Regression.
- (ix) Define the Scattar Diagram.
- (x) Why method of least square is preferred to obtain a line of best fit?
- (xi) State some properties of correlation coefficient.
- (xii) If $S_x = 10, S_y = 10$ and $r_{xy} = 0.60$ then find b_{xy} and b_{yx} .

4. Attempt any six parts.**6 × 2 = 12**

- (i) Interpret the meaning when $Q = -1, Q = 0, Q = 1$
- (ii) Differentiate between positive and negative attribute.
- (iii) Define Term Order of Class.
- (iv) If $(AB) > \frac{(A)(B)}{n}$, then what type of association is between A and B ?
- (v) Define Time Series.
- (vi) What is Moving Average?
- (vii) Describe the Seasonal Variations.
- (viii) Give any three examples of Irregular Variation.
- (ix) Differentiate between Signal and Noise.

SECTION-II**NOTE: - Attempt any three questions.**

- 5.(a) If $X \sim N(60, 100)$. Find the probability that (i) $P(X > 70)$ (ii) $P(50 < X < 80)$ **4**
- (b) In a normal distribution, the lower and upper quartiles are 8 and 17. Find the parameters of the normal distribution. **4**
- 6.(a) A population consist of six numbers 3, 5, 7, 9, 11, 13. Take all possible sample of size 2 without replacement from this population. Find the mean of each sample form the sampling distribution of sample means and also find its mean and standard deviation. **4**

(2)

(b) Given $N_1 = 3$, $n_1 = 2$, $p_1 = \frac{1}{2}$, $N_2 = 3$, $n_2 = 2$, $p_2 = \frac{1}{3}$ find the mean and standard deviation of the difference between two population proportions. If the sampling is done with replacement.

7.(a) Find 90% confidence interval for the mean of a normal distribution if $\sigma = 2$ and if a sample of size 8 gave the value 9, 14, 10, 12, 7, 13, 11, 12.

(b) A coin is tossed 20 times result in 5 heads. Is this sufficient evidence the coin is bias? Use 5% level of significance.

8.(a) Computing from a data set (X, Y) values the following summary statistic recorded:-

$$n = 18, \quad \bar{X} = 1.2, \quad \bar{Y} = 5.1$$

$$S_x^2 = 14.1, \quad S_y^2 = 2.01$$

$$S_{xy} = 2.33 \quad \text{Find } b_{yx} \text{ and } b_{xy}.$$

(b) Find coefficient of correlation from the following data.

| | | | | | | |
|---|----|----|----|----|----|----|
| X | 8 | 9 | 10 | 11 | 12 | 13 |
| Y | 17 | 19 | 21 | 22 | 24 | 25 |

9.(a) Test the association between the subject and results from the following table:-

| Subject | Pass | Fail |
|-----------|------|------|
| Maths | 60 | 40 |
| Stats | 100 | 80 |
| Economics | 120 | 100 |

(b)

| Week | Sunday | Monday | Tuesday | Wednesday | Thursday | Friday | Saturday |
|------|--------|--------|---------|-----------|----------|--------|----------|
| I | 24 | 55 | 29 | 48 | 52 | 55 | 61 |
| II | 27 | 52 | 32 | 43 | 53 | 56 | 65 |

SECTION-III (PRACTICAL)

10. NOTE: - Attempt any three parts.

3 × 5 = 15

(a) From the population 2, 4, 6 and 8. Draw all possible samples of size $n = 2$ with replacement and show that. $\mu_{\bar{x}} = \mu$

(b) Given two independent random samples with the following results.

$$n_1 = 10 \quad \bar{X}_1 = 10 \quad S_1^2 = 1200$$

$$\bar{X}_2 = 25 \quad n_2 = 18 \quad S_2^2 = 900$$

Do the data indicate a difference in population means? Use 0.05 level of significance.

(c) Estimate regression line of Y on X for the following data.

| | | | | | |
|---|-----|-----|-----|-----|-----|
| Y | 4.7 | 2.9 | 6.4 | 2.5 | 4.9 |
| X | 10 | 20 | 30 | 40 | 50 |

(d) Find the association between injection against typhoid and exemption from attack from the following contingency table.

| Attribute | Attack | Not attacked |
|----------------|--------|--------------|
| Inoculated | 528 | 25 |
| Not inoculated | 790 | 175 |

(e) Find 4- Quarter centred moving averages for the following data.

| Years | Q_1 | Q_2 | Q_3 | Q_4 |
|-------|-------|-------|-------|-------|
| 1948 | 68 | 59 | 64 | 71 |
| 1949 | 74 | 65 | 78 | 81 |

INTERMEDIATE PART-II (12th CLASS)

STATISTICS PAPER-II (OLD SCHEME) (SESSION 2012-2014)

TIME ALLOWED: 20 Minutes

OBJECTIVE

MAXIMUM MARKS: 17

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Q.No.1

- (1) The area between $\mu \pm 0.6745 \sigma$ of normal distribution is:-
 (A) 1.0 (B) 2.0 (C) 0.50 (D) 0.6745
- (2) If $Y = 5X + 10$ and $X \sim N(10, 25)$ then mean of Y is:-
 (A) 35 (B) 50 (C) 60 (D) 70
- (3) The values of mean and standard deviation of the standardized normal distribution are:-
 (A) π & e (B) μ & σ (C) μ & 0 (D) 0 & 1
- (4) The standard deviation of a sampling distribution of any statistic is called:-
 (A) Bias (B) Sampling Error (C) Standard Error (D) Non sampling Error
- (5) In case of sampling without replacement $S. E.(\bar{X}) =$
 (A) $\frac{\sigma}{\sqrt{n}}$ (B) $\frac{\sigma}{n}$ (C) $\frac{\sigma^2}{n}$ (D) $\frac{\sigma}{\sqrt{n}} \sqrt{\frac{N-n}{N-1}}$
- (6) The difference between statistic and parameter is called:-
 (A) Standard Error (B) Sampling Error (C) Non- Sampling Error (D) Bias
- (7) _____ statistic is a biased estimator.
 (A) $\bar{X} = \frac{\sum X}{n}$ (B) $S^2 = \frac{\sum (X - \bar{X})^2}{n}$ (C) $s^2 = \frac{\sum (X - \bar{X})^2}{n-1}$ (D) $\hat{p} = \frac{X}{n}$
- (8) Given $\mu_0 = 130$, $\sigma = 25$, $\bar{X} = 150$, $n = 4$ which of the following test-statistic is appropriate?
 (A) Z (B) t (C) χ^2 (D) F
- (9) The probability of committing type II error is denoted by:-
 (A) $1 - \alpha$ (B) α (C) $1 - \beta$ (D) β
- (10) In regression line $\hat{Y} = a + bx$ "X" is:-
 (A) Slope of the line (B) Explained variable (C) Regressor (D) Regressand
- (11) If $\hat{Y} = bx$ then Y - intercept is:-
 (A) Zero (B) Positive (C) Negative (D) Non - negative
- (12) The coefficient of correlation cannot be less than:- (A) -1 (B) 0 (C) $+1$ (D) $\sqrt{1}$
- (13) For a 2×2 contingency table d. f. = (A) 4 (B) 2 (C) 1 (D) Zero
- (14) Two attributes A & B are independent if $(AB) =$
 (A) $\frac{(\alpha)(\beta)}{N}$ (B) $\frac{(\alpha)(B)}{N}$ (C) $\frac{(A)(\beta)}{N}$ (D) $\frac{(A)(B)}{N}$
- (15) Histogram is a graphic representation of:-
 (A) Time series (B) Paired data (X_i, Y_i) (C) Random variables (D) Frequency distribution
- (16) For a time series data when a second degree curve $Y = aX^2 + bX$ is fitted then number of normal equations will be:- (A) 1 (B) 2 (C) 3 (D) 4
- (17) _____ is not an input device.
 (A) Key board (B) Mouse (C) Speaker (D) Scanner

INTERMEDIATE PART-II (12th CLASS)

STATISTICS PAPER-II (OLD SCHEME) (SESSION 2012-2014)

TIME ALLOWED: 20 Minutes

OBJECTIVE

MAXIMUM MARKS: 17

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Q.No.1

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 (A) $1 - \alpha$ (B) α (C) $1 - \beta$ (D) β
- (3) In regression line $\hat{Y} = a + bx$ "X" is:-
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- (4) If $\hat{Y} = bx$ then Y -intercept is:-
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- (8) Histogram is a graphic representation of:-
 (A) Time series (B) Paired data (X_i, Y_i) (C) Random variables (D) Frequency distribution
- (9) For a time series data when a second degree curve $Y = aX^2 + bX$ is fitted then number of normal equations will be:- (A) 1 (B) 2 (C) 3 (D) 4
- (10) _____ is not an input device.
 (A) Key board (B) Mouse (C) Speaker (D) Scanner
- (11) The area between $\mu \mp 0.6745 \sigma$ of normal distribution is:-
 (A) 1.0 (B) 2.0 (C) 0.50 (D) 0.6745
- (12) If $Y = 5X + 10$ and $X \sim N(10, 25)$ then mean of Y is:-
 (A) 35 (B) 50 (C) 60 (D) 70
- (13) The values of mean and standard deviation of the standardized normal distribution are:-
 (A) π & e (B) μ & σ (C) μ & 0 (D) 0 & 1
- (14) The standard deviation of a sampling distribution of any statistic is called:-
 (A) Bias (B) Sampling Error (C) Standard Error (D) Non sampling Error
- (15) In case of sampling without replacement $S. E.(\bar{X}) =$
 (A) $\frac{\sigma}{\sqrt{n}}$ (B) $\frac{\sigma}{n}$ (C) $\frac{\sigma^2}{n}$ (D) $\frac{\sigma}{\sqrt{n}} \sqrt{\frac{N-n}{N-1}}$
- (16) The difference between statistic and parameter is called:-
 (A) Standard Error (B) Sampling Error (C) Non-Sampling Error (D) Bias
- (17) _____ statistic is a biased estimator.
 (A) $\bar{X} = \frac{\sum X}{n}$ (B) $S^2 = \frac{\sum (X - \bar{X})^2}{n}$ (C) $s^2 = \frac{\sum (X - \bar{X})^2}{n-1}$ (D) $\hat{p} = \frac{X}{n}$

INTERMEDIATE PART-II (12th CLASS)

STATISTICS PAPER-II (OLD SCHEME) (SESSION 2012-2014)

TIME ALLOWED: 20 Minutes

OBJECTIVE

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. Attempt as many questions as given in objective type question paper and leave others blank. No credit will be awarded in case BUBBLES are not filled. Do not solve question on this sheet of OBJECTIVE PAPER.

Q.No.)

- (1) Two attributes A & B are independent if $(AB) =$
 (A) $\frac{(\alpha)(\beta)}{N}$ (B) $\frac{(\alpha)(B)}{N}$ (C) $\frac{(A)(\beta)}{N}$ (D) $\frac{(A)(B)}{N}$
- (2) Histogram is a graphic representation of:-
 (A) Time series (B) Paired data (X_i, Y_i) (C) Random variables (D) Frequency distribution
- (3) For a time series data when a second degree curve $Y = aX^2 + bX$ is fitted then number of normal equations will be:- (A) 1 (B) 2 (C) 3 (D) 4
- (4) _____ is not an input device.
 (A) Key board (B) Mouse (C) Speaker (D) Scanner
- (5) The area between $\mu \pm 0.6745 \sigma$ of normal distribution is:-
 (A) 1.0 (B) 2.0 (C) 0.50 (D) 0.6745
- (6) If $Y = 5X + 10$ and $X \sim N(10, 25)$ then mean of Y is:-
 (A) 35 (B) 50 (C) 60 (D) 70
- (7) The values of mean and standard deviation of the standardized normal distribution are:-
 (A) π & e (B) μ & σ (C) μ & O (D) O & I
- (8) The standard deviation of a sampling distribution of any statistic is called:-
 (A) Bias (B) Sampling Error (C) Standard Error (D) Non sampling Error
- (9) In case of sampling without replacement $S. E.(\bar{X}) =$
 (A) $\frac{\sigma}{\sqrt{n}}$ (B) $\frac{\sigma}{n}$ (C) $\frac{\sigma^2}{n}$ (D) $\frac{\sigma}{\sqrt{n}} \sqrt{\frac{N-n}{N-1}}$
- (10) The difference between statistic and parameter is called:-
 (A) Standard Error (B) Sampling Error (C) Non- Sampling Error (D) Bias
- (11) _____ statistic is a biased estimator.
 (A) $\bar{X} = \frac{\sum X}{n}$ (B) $S^2 = \frac{\sum (X - \bar{X})^2}{n}$ (C) $s^2 = \frac{\sum (X - \bar{X})^2}{n-1}$ (D) $\hat{p} = \frac{X}{n}$
- (12) Given $\mu_0 = 130$, $\sigma = 25$, $\bar{X} = 150$, $n = 4$ which of the following test-statistic is appropriate?
 (A) Z (B) t (C) χ^2 (D) F
- (13) The probability of committing type II error is denoted by:-
 (A) $1 - \alpha$ (B) α (C) $1 - \beta$ (D) β
- (14) In regression line $\hat{Y} = a + bx$ " X " is:-
 (A) Slope of the line (B) Explained variable (C) Regressor (D) Regressand
- (15) If $\hat{Y} = bx$ then Y - intercept is:-
 (A) Zero (B) Positive (C) Negative (D) Non - negative
- (16) The coefficient of correlation cannot be less than:- (A) -1 (B) 0 (C) $+1$ (D) $\sqrt{1}$
- (17) For a 2×2 contingency table d. f. = (A) 4 (B) 2 (C) 1 (D) Zero

INTERMEDIATE PART-II (12th CLASS)

STATISTICS PAPER-II (OLD SCHEME) (SESSION 2012-2014)

TIME ALLOWED: 20 Minutes

OBJECTIVE

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. Attempt as many questions as given in objective type question paper and leave others blank. No credit will be awarded in case BUBBLES are not filled. Do not solve question on this sheet of OBJECTIVE PAPER.

Q.No.1

- (1) The difference between statistic and parameter is called:-
 (A) Standard Error (B) Sampling Error (C) Non- Sampling Error (D) Bias
- (2) _____ statistic is a biased estimator.
 (A) $\bar{X} = \frac{\sum X}{n}$ (B) $S^2 = \frac{\sum (X - \bar{X})^2}{n}$ (C) $s^2 = \frac{\sum (X - \bar{X})^2}{n-1}$ (D) $\hat{p} = \frac{X}{n}$
- (3) Given $\mu_3 = 130$, $\sigma = 25$, $\bar{X} = 150$, $n = 4$ which of the following test-statistic is appropriate?
 (A) Z (B) t (C) χ^2 (D) F
- (4) The probability of committing type II error is denoted by:-
 (A) $1 - \alpha$ (B) α (C) $1 - \beta$ (D) β
- (5) In regression line $\hat{Y} = a + bx$ "X" is:-
 (A) Slope of the line (B) Explained variable (C) Regressor (D) Regressand
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- (7) The coefficient of correlation cannot be less than:- (A) -1 (B) 0 (C) +1 (D) $\sqrt{1}$
- (8) For a 2×2 contingency table d. f. = (A) 4 (B) 2 (C) 1 (D) Zero
- (9) Two attributes A & B are independent if $(AB) =$
 (A) $\frac{(\alpha)(\beta)}{N}$ (B) $\frac{(\alpha)(B)}{N}$ (C) $\frac{(A)(\beta)}{N}$ (D) $\frac{(A)(B)}{N}$
- (10) Histogram is a graphic representation of:-
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- (12) _____ is not an input device.
 (A) Key board (B) Mouse (C) Speaker (D) Scanner
- (13) The area between $\mu \pm 0.6745 \sigma$ of normal distribution is:-
 (A) 1.0 (B) 2.0 (C) 0.50 (D) 0.6745
- (14) If $Y = 5X + 10$ and $X \sim N(10, 25)$ then mean of Y is:-
 (A) 35 (B) 50 (C) 60 (D) 70
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 (A) π & e (B) μ & σ (C) μ & 0 (D) 0 & 1
- (16) The standard deviation of a sampling distribution of any statistic is called:-
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- (17) In case of sampling without replacement S. E. $(\bar{X}) =$
 (A) $\frac{\sigma}{\sqrt{n}}$ (B) $\frac{\sigma}{n}$ (C) $\frac{\sigma^2}{n}$ (D) $\frac{\sigma}{\sqrt{n}} \sqrt{\frac{N-n}{N-1}}$

**BOARD OF INTERMEDIATE AND SECONDARY EDUCATION,
MULTAN**

OBJECTIVE KEY FOR INTER (PART I / II) Annual Examination, 2017.

Name of Subject STATISTICS
Group: ~~1st~~ New Scheme

Session STATISTICS
Group: 2nd OLD SCHEME

| Q. Nos. | Paper Code 4181 | Paper Code 4183 | Paper Code 4185 | Paper Code 4187 |
|---------|-----------------|-----------------|-----------------|-----------------|
| 1. | D | C | A | A |
| 2. | A | A | C | C |
| 3. | C | C | B | A |
| 4. | B | D | D | A |
| 5. | A | D | C | C |
| 6. | C | A | C | B |
| 7. | A | C | C | D |
| 8. | A | B | A | C |
| 9. | C | A | C | C |
| 10. | B | C | D | C |
| 11. | D | A | D | A |
| 12. | C | A | A | C |
| 13. | C | C | C | D |
| 14. | C | B | B | D |
| 15. | A | D | A | A |
| 16. | C | C | C | C |
| 17. | D | C | A | B |
| 18. | | | | |
| 19. | | | | |
| 20. | | | | |

| Q. Nos. | Paper Code 8181 | Paper Code 8183 | Paper Code 8185 | Paper Code 8187 |
|---------|-----------------|-----------------|-----------------|-----------------|
| 1. | C | A | D | B |
| 2. | C | D | A | B |
| 3. | D | C | B | A |
| 4. | C | A | C | D |
| 5. | D | A | C | C |
| 6. | B | C | C | A |
| 7. | B | D | D | A |
| 8. | A | A | C | C |
| 9. | D | B | D | D |
| 10. | C | C | B | A |
| 11. | A | C | B | B |
| 12. | A | C | A | C |
| 13. | C | D | D | C |
| 14. | D | C | C | C |
| 15. | A | D | A | D |
| 16. | B | B | A | B |
| 17. | C | B | C | D |
| 18. | | | | |
| 19. | | | | |
| 20. | | | | |

سرٹیفکیٹ بابت تصحیح سوالیہ پرچہ مارکنگ Key

ہم نے مضمون STAT پرچہ 2 گروپ 1 old/No ایئر سیٹ امتحان 2017 کا سوالیہ پرچہ چھاننا یہ مضمون (Subjective & Objective) کو مدنظر میں چیک کر لیا ہے یہ پرچہ سلیبس کے عین مطابق Set کیا گیا ہے۔ اس سوالیہ پرچہ میں کسی قسم کی کوئی غلطی نہ ہے۔ ہم نے سوالیہ پرچہ کا اردو اور انگریزی Version بھی چیک کر لیا ہے یہ Version آپس میں مطابقت رکھتے ہیں اور سلیبس (Syllabus) کے مطابق بھی ہیں۔ نیز اس پرچہ کی Key کی بابت بھی تصدیق کی جاتی ہے کہ یہ بھی درست بتائی گئی ہے اس میں بھی کسی قسم کی کوئی غلطی نہ ہے۔ مزید یہ کہ ہم نے Key تیار کرنے سے متعلق دفتر کی جانب سے تیار کردہ ہدایات وصول کر کے ان کا بغور مطالعہ کر لیا ہے اور ان کی روشنی میں Key بتائی ہے۔

PREPARED & CHECKED BY

| Sr.No | Name | Designation | Institution | Mobile No. | Signature |
|-------|-----------------|-----------------|--------------------------------|--------------|-----------|
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| 3 | EHSAN-UD-REHMAN | ASSISTANT PROF. | G.P. Graduate Collg Khairpur | | |