

**BOARD OF INTERMEDIATE AND SECONDARY EDUCATION,
MULTAN**
OBJECTIVE KEY FOR INTER (PART I/ II) Annual Examination, 2016.
Name of Subject Statistics Session _____

Q. Nos.	Paper Code 8181	Paper Code 8183	Paper Code 8185	Paper Code 8187
1.	a	b	b	b
2.	a, b, c, d	a	a	a
3.	c	c	c	a
4.	B	b	b	b
5.	a	a	c	a
6.	a	a, b, c, d	a	c
7.	b	c	c	b
8.	a	b	b	c
9.	c	a	a	a
10.	B	a	c	c
11.	c	b	b	b
12.	a	a	a	a
13.	c	c	a, b, c, d	c
14.	b	b	c	b
15.	a	c	b	a
16.	c	a	a	a, b, c, d
17.	b		a	c
18.				
19.				
20.				

Note: 2, 6, 13, 16
as per code:-
8181, 8183, 8185,
8187 respectively.
Give '1' marks to
all students (attempt)

Key: تصیح سوائیہ پر چار مارکنگ

ہم نے ضمنی امتحانات پر چار مارکنگ B کرنا ہے۔
(Subjective & Objective) کو نظر میں رکھ کر لیا ہے یہ پرچہ سٹیکس کے میں مطابق Set کیا گیا ہے۔ اس سوائیہ پرچہ میں کسی قسم کی کوئی
غلطی نہ ہے۔ ہم نے سوائیہ پرچہ کا اردو اور انگریزی Version بھی چیک کر لیا ہے یہ Version آپس میں مطابقت رکھتے ہیں اور سٹیکس (Syllabus)
کے مطابق بھی ہیں۔ نیز اس پرچہ کی Key کی اہمیت بھی تصدیق کی جاتی ہے کہ یہ سٹی درست بنائی گئی ہے اس میں بھی کسی قسم کی کوئی غلطی نہ ہے۔
مزید یہ کہ ہم نے Key بنانے سے متعلق دفتر کی جانچ سے تیار کردہ ہدایات و معمول کر کے ان کا تکرار مطابقت کر لیا ہے اور ان کی روشنی میں Key بنائی ہے۔

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OBJECTIVE

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 normal distribution is a:-
 (A) Unimodel (B) Multimodel (C) Bimodel (D) Tri-model
- (2) In a normal distribution $\mu = 0.6745$ or is equal to:-
 (A) θ_1 (B) $\frac{2}{3}$ (C) μ (D) θ_1
- (3) For the standardized normal variate $P(0 \leq z \leq \infty) =$
 (A) 1 (B) 0 (C) 0.5 (D) 0.75
- (4) A population consists of 5 members 1, 2, 3, 4, 5 then proportion of even numbers is:-
 (A) $\frac{3}{5}$ (B) $\frac{2}{5}$ (C) $\frac{1}{5}$ (D) $\frac{4}{5}$
- (5) A value calculated from population is called:-
 (A) Parameter (B) Statistic (C) Population (D) Sample
- (6) If $\bar{X} = 22$ and $\mu = 20$ then sampling error is equal to:-
 (A) 2 (B) 20 (C) 22 (D) 42
- (7) If $n = 8$, $\sum x = 120$, $\sum (x - \bar{x})^2 = 302$ then unbiased estimates of the population variance is:-
 (A) 15 (B) 43.14 (C) 37.75 (D) 120
- (8) An error is made by accepting H_0 if H_1 is actually true:-
 (A) Type II error (B) Type I error (C) Sampling error (D) None of these
- (9) Level of significance is denoted by:-
 (A) β (B) $1 - \alpha$ (C) α (D) $1 - \beta$
- (10) Regression co-efficient is independent of:-
 (A) Scale (B) Origon (C) Both A and B (D) None of these
- (11) A correlation co-efficient lies between:-
 (A) -1 to 0 (B) 0 to 1 (C) -1 to +1 (D) $-\infty$ to $+\infty$
- (12) If $b_{y,x} = 0.16$, $b_{x,y} = 0.04$ then r_{xy} is:-
 (A) 0.08 (B) 0.8 (C) 0.16 (D) 0.04
- (13) For (4×5) contingency table the no of cells is equal to:-
 (A) 4 (B) 15 (C) 20 (D) 16
- (14) In a chi-square test for independence no expected frequency should be _____ than 5.
 (A) Greater (B) Less (C) Both A and B (D) None of these
- (15) The graph of time series is called:-
 (A) Historigram (B) Scatter Diagram (C) Frequency Curve (D) Histogram
- (16) The best fitting trend is one in which the sum of squares of residuals is:-
 (A) Maximum (B) Zero (C) Least (D) Negative
- (17) A decimal number system has base:-
 (A) 8 (B) 10 (C) 2 (D) 16

INTERMEDIATE PART-II (12th CLASS)

STATISTICS PAPER-II

TIME ALLOWED: 3.10 Hours

MAXIMUM MARKS: 83

SUBJECTIVE

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

SECTION-I

8 × 2 = 16

2. Attempt any eight parts.

- In a normal distribution $\mu_4 = 243$ find parameter δ
- What are the mean and variance of Normal Distribution?
- Find the value of maximum ordinate for a normal distribution, when $\mu = 25$ and $\delta^2 = 25$
- What are the parameters of Normal Distribution?
- What are the Q . D and M.D of the Normal Distribution?
- Given $\bar{X} = 120$, $\mu_0 = 100$, $S = 34.75$ and $n = 25$ find t .
- Define Level of Confidence.
- Define Statistical Inference.
- Define type II-error.
- Define Simple Hypothesis.
- What do you know DOS?
- In Computer Studies, what do you understand by Binary Number System?

3. Attempt any eight parts.

8 × 2 = 16

- Define Sampling Frame.
- Elaborate the term Statistic.
- Explain Probability Sampling.
- What do you understand by Standard Error?
- In a population with $\mu = 50$ and $\delta^2 = 250$. Find the mean and variance for the sampling distribution of mean if sampling is done with replacement with $n = 50$.
- Given $\mu = 40$, $\delta = 4$, $S.E(\bar{X}) = 2$. Find n .
- What is meant by regression co-efficient?
- Write down two properties of slope.
- Define simple linear regression.
- Explain the term negative correlation.
- Interpret the mean. of $r = +1$
- Given $\bar{X} = 1$, $\bar{Y} = 8$, $b = 2$. Find the value of intercept 'a'.

4. Attempt any six parts.

6 × 2 = 12

- Explain the term rank correlation.
- What is meant by independence of attributes? Explain
- Given the pairs of ranks (4, 2), (1, 3), (2, 1), (5, 6), (6, 5), (3, 4). Find $\sum d^2$.
- Define Time Series.
- Explain the term Secular Trend.
- Given $(y - \hat{y}) = 0.5, -0.5, 1, -1, 0.5, -0.5$. Find sum of squares of residuals.
- In a time series $Y = 16 + 0.2x$. Determine Y - intercept and slope of the line.
- Write down additive model of time series.
- What are the different components of a time series?

SECTION-II

NOTE: - Attempt any three questions.

- $X \sim N(50, a^2)$ and $P(x < 69.9) = 0.993$ find the value of a . 4
 - If $X \sim N(24, 16)$ find (i) P_{20} (ii) D_9 4
- What will be the mean and variance of sample means if a sample of 36 is drawn with replacement from the population 1, 2, 3, 4, 4, 4, 5, 6, 6, 7. 4
 - Given $P_1 = \frac{1}{3}$, $P_2 = \frac{2}{3}$, $n_1 = 2$, $n_2 = 2$ sampling is done with replacement.
Find (i) $E(\hat{P}_1 - \hat{P}_2)$ (ii) $S.E(\hat{P}_1 - \hat{P}_2)$ 4

- 7.(a) In a sample of 500 items, 40 are defective. Compute 95% confidence interval for the proportion of defective in the population. 4

- (b) A class of six students was given a test before coaching and after one month coaching their marks were as follows:- 4

Before coaching (X)	45	35	57	60	38	51
After coaching (Y)	52	40	57	63	47	53

Test the hypothesis that coaching on the average has improved the performance of Students. Use $\alpha = 5\%$

- 8.(a) The following table shows the marks obtained by students in Economics(X) and Statistics (Y). 4

X	40	40	32	34	50
Y	43	56	70	68	57

Find the least squares regression line y on x and show that $\sum y = \sum \hat{y}$.

- (b) Compute co-efficient of correlation by finding missing value when $\bar{X} = 6$, $\bar{Y} = 8$ for the data given below:- 4

X	4	6	?	2	8
Y	8	9	5	11	7

- 9.(a) Test H_0 : the two attributes are independent if 470 passed out of 750 appeared students. 465 had attended classes and 58 of them failed. 4

- (b) Suppose $\hat{Y} = 50 + 2x$ with origin at 1983 and unit of measurement for x is one year. Shift the origin at 1980. 4

SECTION-III (PRACTICAL)

10. NOTE: - Attempt any three parts. 3 × 5 = 15

- (a) A population has values 4, 5, 7, 9. Take all possible samples of size two without replacement from this population. Verify that (i) $\mu_{\bar{x}} = \mu$ (ii) $\sigma^2_{\bar{x}} = \frac{\sigma^2}{n} \left(\frac{N-n}{N-1} \right)$

- (b) Given that $n_1 = 9$, $\bar{X}_1 = 75$, $\sum (X_1 - \bar{X}_1)^2 = 1482$, $n_2 = 16$, $\bar{X}_2 = 60$, $\sum (X_2 - \bar{X}_2)^2 = 1830$. Find 90% confidence interval for $(\mu_1 - \mu_2)$

- (c) Given the following data, find regression equation of y on x :-

x	6	2	10	4	8
y	9	11	5	8	7

- (d) Compute co-efficient of rank correlation from the following ranks:-

x	5	2	7	1	4	3	6
y	7	4	5	1	3	2	6

- (e) Compute 4 - years centred moving average from the following time series:-

Years	2003	2004	2005	2006	2007	2008
Values	331	344	349	332	364	395