

BOARD OF INTERMEDIATE AND SECONDARY EDUCATION, MULTAN.
OBJECTIVE KEY FOR INTERMEDIATE 2nd ANNUAL EXAMINATION, 2025

Name of Subject: Statistics - II Group:

Q. Nos	Paper Code 4181	Correct Answer	Paper Code 4183	Correct Answer	Paper Code 4185	Correct Answer	Paper Code 4187	Correct Answer
1	A	2	D	X on Y	A	Quota Sampling	C	$Y = TCS1$
2	C	$\frac{2}{3} S.D$	C	26	B	32	A	> 0
3	D	1	B	$-1 \leq r \leq +1$	D	P	D	zero
4	C	$\bar{M} = \mu$	C	4	C	$\mu < \mu_0$	B	Power Point
5	A	Quota Sampling	C	$Y = TCS1$	A	$t = \frac{(\bar{x} - \mu_0)}{s} \sqrt{n}$	A	2
6	B	32	A	> 0	D	X on Y	C	$\frac{2}{3} S.D$
7	D	P	D	zero	C	26	D	1
8	C	$\mu < \mu_0$	B	Power Point	B	$-1 \leq r \leq +1$	C	$\bar{M} = \mu$
9	A	$t = \frac{(\bar{x} - \mu_0)}{s} \sqrt{n}$	A	2	C	4	A	Quota Sampling
10	D	X on Y	C	$\frac{2}{3} S.D$	C	$Y = TCS1$	B	32
11	C	26	D	1	A	> 0	D	P
12	B	$-1 \leq r \leq +1$	C	$\bar{M} = \mu$	D	zero	C	$\mu < \mu_0$
13	C	4	A	Quota Sampling	B	Power Point	A	$t = \frac{(\bar{x} - \mu_0)}{s} \sqrt{n}$
14	C	$Y = TCS1$	B	32	A	2	D	X on Y
15	A	> 0	D	P	C	$\frac{2}{3} S.D$	C	26
16	D	zero	C	$\mu < \mu_0$	D	1	B	$-1 \leq r \leq +1$
17	B	Power Point	A	$t = \frac{(\bar{x} - \mu_0)}{s} \sqrt{n}$	C	$\bar{M} = \mu$	C	4
18								
19								
20								
Cross Check	A	B	C	D	A	B	C	D
Total	04	03	06	04	04	03	06	04

سرٹیفکیٹ بابت صحیح سوالیہ پرچہ امارنگ Key

ہم نے مضمون Statistics پرچہ IInd گروپ انٹرمیڈیٹ دوسرا سالانہ امتحان 2025 کا سوالیہ پرچہ انشائیہ و معروضی (Subjective & Objective) کو بنظر عمیق چیک کر لیا ہے یہ پرچہ Syllabus 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۔ نیز اس پرچہ کی معروضی (MCQs) Key کی بابت تصدیق کی جاتی ہے کہ اس میں بھی کسی قسم کی کوئی غلطی نہ ہے۔ مزید یہ کہ ہم نے Key بنانے 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 بنائی ہے۔ نیز سب ایگزامینرز کیلئے تفصیلی مارکنگ ہدایات / مارکنگ سکیم / Rubrics بھی تیار کر دی گئی ہیں۔

Prepared & Checked By:

Dated: 06-11-2025

S.#	Name	Designation	Institution	Mobile No	Signature
1	Minza Qamar Rayees	A.P.	Govt. W. H. Isl. Gr. College Multan	0321-630-3691	
2	Dr. Muhammad Rashid	A.P.	Govt. Graduate College Civil Lines, Multan	0300-7328109	
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4					
5					

Re-Checked By ہم نے درج بالا سوالیہ پرچہ (انشائیہ + معروضی) معروضی "Key" اور ہدایات کے حوالہ سے مکمل طور پر تلی کر لی ہے۔ کسی قسم کی کوئی غلطی نہ ہے۔

1	M. Arsalan	Asso. Prof	Govt. Graduate College Science, Multan	0300 6162184	
2					

تاریخ 07/11/25

INTERMEDIATE PART-II (12 th Class)		2025 (2 nd -A)	Roll No:																								
STATISTICS PAPER-II																											
TIME ALLOWED: 2.40 Hours		SUBJECTIVE	MAXIMUM MARKS: 68																								
NOTE: Write same question number and its parts number on answer book, as given in the question paper.																											
SECTION-I																											
2. Attempt any eight parts.			8×2 = 16																								
(i)	What is the range of Normal distribution?	(ii)	What are the parameters of the normal distribution?																								
(iii)	Write down the equation of Normal curve.	(iv)	In a normal distribution $\mu = 5$ and $\sigma = 2$ find Q_3 .																								
(v)	If $Q.D = 10$ and X is normally distributed. Find mean deviation.	(vi)	Define interval estimation.																								
(vii)	Given $n = 144$, $\bar{X} = 750$, $S = 6$, $Z_{0.01} = 2.33$ compute 98% confidence interval for μ .																										
(viii)	What is meant by simple hypothesis?	(ix)	Find the value of t(test statistic) if $n = 20$, $\bar{X} = 4$, $s = 3$, $\mu = 4$																								
(x)	Given $n_1 = 6$, $\sum(X_1 - \bar{X}_1)^2 = 6500$, $n_2 = 8$, $\sum(X_2 - \bar{X}_2)^2 = 100$ find S_p .																										
(xi)	Explain the types of printer.	(xii)	What is meant by computer hardware?																								
3. Attempt any eight parts.			8×2 = 16																								
(i)	Define Non-Probability sampling.	(ii)	How sampling error can be reduced?																								
(iii)	Define Parameter and statistic.																										
(iv)	If $n = 400$, $\pi = 0.7$ and $N = 4500$, find μ_p , σ_p^2 using without replacement sampling.																										
(v)	Take all possible samples of size 2 without replacement from the population 1, 3, 5, 7, 9.																										
(vi)	Given $N = 310$, $n = 100$, $\sigma_{\bar{X}}^2 = 35$. If sampling is with replacement, find standard deviation of population.																										
(vii)	What is scatter diagram?	(viii)	Describe two properties of least square regression line.																								
(ix)	Given $\bar{X} = 50$, $\bar{Y} = 110$, $a = 10$ find the value of b_{yx}	(x)	Define Rank Correlation.																								
(xi)	Write down any two properties of correlation coefficient.	(xii)	Given $r = 0.48$, $S_x^2 = 16$, $S_{xy} = 36$ find S_y																								
4. Attempt any six parts.			6×2 = 12																								
(i)	Define secular trend and give two examples of it.	(ii)	Define business cycle.																								
(iii)	Give one advantage and disadvantage of free hand curve method.	(iv)	What is Histogram?																								
(v)	If year = 2015, 2016, 2017, 2018, Y = 5, 5, 5, 5. Find trend values by semi averages.	(vi)	Explain time series.																								
(vii)	If $O = 1, 2, 5, 6, 7$ $e = 1, 2, 5, 6, 7$ find value of χ^2 .																										
(viii)	Distinguish between observed and expected values in association.																										
(ix)	Define Association. Give its one example from real life.																										
SECTION-II																											
NOTE: Attempt any three questions.			3×8 = 24																								
5.(a)	Let X be a normal random variable with mean = 16 and standard deviation = 5. Determine P (less than 10 or more than 18)																										
(b)	In a normal distribution 30% of the values are under 50 and 10% are over 70. Find the mean and standard deviation of the distribution.																										
6.(a)	Take all possible samples of size two with replacement from the population 2, 2, 8. Show that population variance is twice the variance of sample mean.																										
(b)	Draw all possible samples of size three without replacement from the population 3, 4, 5, 7. Calculate proportion of odd numbers in each sample and verify that $Var(\hat{p}) = \frac{Pq}{n} \left(\frac{N-n}{N-1} \right)$																										
7.(a)	A random sample of 500 apples was taken from a lot, and 65 were found to be bad. Find 99% Confidence Interval for bad apples in complete consignment.																										
(b)	The mean of simple random samples of 500 and 400 are 11.5 and 10.9 respectively. Can the samples be regarded as drawn from a population of standard deviation 5?																										
8.(a)	Compute the line of regression of Y on X .																										
	<table><tr><td>X</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>10</td></tr><tr><td>Y</td><td>7</td><td>9</td><td>10</td><td>12</td><td>13</td><td>11</td></tr></table>			X	5	6	7	8	9	10	Y	7	9	10	12	13	11										
X	5	6	7	8	9	10																					
Y	7	9	10	12	13	11																					
(b)	Compute the correlation coefficient from the data: $n = 8$, $\sum X = 36$, $\sum X^2 = 204$, $\sum Y = 152$, $\sum Y^2 = 3056$, $\sum XY = 768$ also show that $r = \sqrt{b_{yx} \times b_{xy}}$																										
9.(a)	For the data given below:																										
	<table><tr><td colspan="4">Course of study</td></tr><tr><td>Sex</td><td>Arts</td><td>Commerce</td><td>Science</td></tr><tr><td>Male</td><td>200</td><td>300</td><td>100</td></tr><tr><td>Female</td><td>100</td><td>200</td><td>100</td></tr></table>			Course of study				Sex	Arts	Commerce	Science	Male	200	300	100	Female	100	200	100								
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Sex	Arts	Commerce	Science																								
Male	200	300	100																								
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	Use chi-square test to check the association between sex and course of study.																										
(b)	Calculate 5 – year moving averages from the following data:																										
	<table><tr><td>Year</td><td>Value</td><td>Year</td><td>Value</td></tr><tr><td>1921</td><td>102</td><td>1926</td><td>180</td></tr><tr><td>1922</td><td>108</td><td>1927</td><td>196</td></tr><tr><td>1923</td><td>130</td><td>1928</td><td>210</td></tr><tr><td>1924</td><td>140</td><td>1929</td><td>220</td></tr><tr><td>1925</td><td>158</td><td>1930</td><td>230</td></tr></table>			Year	Value	Year	Value	1921	102	1926	180	1922	108	1927	196	1923	130	1928	210	1924	140	1929	220	1925	158	1930	230
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Paper Code Number: 4181		2025 (2 nd -A) INTERMEDIATE PART-II (12 th Class)		Roll No: _____	
STATISTICS PAPER-II					
TIME ALLOWED: 20 Minutes		OBJECTIVE		MAXIMUM MARKS: 17	
Q.No.1	You have four choices for each objective type question as A, B, C and D. The choice which you think is correct, fill that bubble in front of that question number, on bubble sheet. Use marker or pen to fill the bubbles. Cutting or filling two or more bubbles will result in zero mark in that question.				
S.#	QUESTIONS	A	B	C	D
1	If $X \sim N(16, 9)$, Quartile Deviation is:	2	3	4	5
2	Quartile Deviation is:	$\frac{12}{13}SD$	$\frac{4}{5}SD$	$\frac{2}{3}SD$	MD
3	Total area under the normal curve is:	4	3	2	1
4	In sampling without replacement:	$\mu_{\bar{X}} > \mu$	$\mu_{\bar{X}} < \mu$	$\mu_{\bar{X}} = \mu$	$\mu_{\bar{X}} \neq \mu$
5	Which is not a probability sampling?	Quota sampling	Simple random sampling	Stratified random sampling	Random sampling
6	If $N = 2$ and $n = 5$, then total possible samples with replacement are:	5C_2	32	7	10
7	If π is population proportion and P is sample proportion then point estimator of π is:	π	$\sqrt{P}$	P^2	P
8	Which of the given is not a null hypothesis?	$\mu \geq \mu_0$	$\mu = \mu_0$	$\mu < \mu_0$	$\mu \leq \mu_0$
9	If n is small and σ unknown, test statistic for $H_0 : \mu = \mu_0$ is:	$t = (\bar{X} - \mu_0)\sqrt{n/s}$	Z	Chi-square	F
10	$b = \frac{\sum(X - \bar{X})(Y - \bar{Y})}{\sum(Y - \bar{Y})^2}$ is called regression coefficient of:	Y on Y	X on X	Y on X	X on Y
11	If $\hat{Y} = 2 + 3X$, Estimate of Y for $X = 8$ is:	24	25	26	27
12	Possible values of correlation coefficient are:	$0 \leq r \leq 1$	$-1 \leq r \leq +1$	$0 \leq r < \infty$	$-\infty \leq r \leq \infty$
13	How many components of a time series are there?	2	3	4	5
14	Multiplicative model of a time series is:	$Y = T + C + S + I$	$Y = TC / SI$	$Y = TCSI$	$Y = TC + SI$
15	Possible values of chi-square are:	≥ 0	≤ 0	$\neq 0$	< 0
16	If $\frac{6\sum d^2}{n(n^2 - 1)} = 1$, then value of rank correlation coefficient is:	2	-1	10	Zero
17	Which is not an example of hardware?	Printer	Power Point	Monitor	Mouse

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5	Multiplicative model of a time series is:	$Y = T + C + S + I$	$Y = TC / SI$	$Y = TCSI$	$Y = TC + SI$
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Paper Code Number: 4185		2025 (2 nd -A) INTERMEDIATE PART-II (12 th Class)		Roll No: _____	
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6	$b = \frac{\sum(X - \bar{X})(Y - \bar{Y})}{\sum(Y - \bar{Y})^2}$ is called regression coefficient of:	Y on Y	X on X	Y on X	X on Y
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