

BOARD OF INTERMEDIATE AND SECONDARY EDUCATION, MULTAN.
OBJECTIVE KEY FOR INTERMEDIATE 1st ANNUAL EXAMINATION, 2026

Name of Subject: Statistics Group:

Q. Nos	Paper Code 4181	Correct Answer	Paper Code 4183	Correct Answer	Paper Code 4185	Correct Answer	Paper Code 4187	Correct Answer
1	B	1✓	A	1	C	1	A	-1 to +1
2	A	-1✓	B	Residual	D	Range of value	D	intercept
3	C	Symmetric✓	C	Random Event	A	Both Direction	C	Minimum
4	D	whole population	B	Temporary Memory	B	Reject True H ₀	D	04
5	B	π ✓	B	1	A	-1 to +1	A	1
6	C	1✓	A	-1	D	Intercept	B	Residual
7	D	Range of value	C	Symmetric	C	Minimum	C	Random Event
8	A	Both Direction	D	whole population	D	04	B	Temporary Memory
9	B	Reject True H ₀	B	π	A	1	B	1
10	A	-1 to +1✓	C	1	B	Residual	A	-1
11	D	Intercept✓	D	Range of value	C	Random Event	C	Symmetric
12	C	Minimum✓	A	Both Direction	B	Temporary Memory	D	whole population
13	D	04✓	B	Reject True H ₀	B	1	B	π
14	A	1✓	A	-1 to +1	A	-1	C	1
15	B	Residual✓	D	Intercept	C	Symmetric	D	Range of value
16	C	Random Event✓	C	Minimum	D	whole population	A	Both Direction
17	B	Temporary Memory	D	04	B	π	B	Reject True H ₀
18								
19								
20								
Cross Check	A	B	C	D	A	B	C	D
Total	04	05	04	04	04	05	04	04

مرئیات بابت صحیح سوالیہ پرچہ امارت
Key

ہم نے مضمون Statistics پرچہ II گروپ M/H انٹر میڈیٹ پہلا سالانہ امتحان 2026 کا سوالیہ پرچہ انشائیہ و معروضی (Subjective & Objective) کو بنظر عین 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: 01/08/26

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INTERMEDIATE PART-II (12 th Class)				2026 1 st -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. Write answers of any eight parts.						8 × 2 = 16		
(i)	Define normal distribution.		(ii)	If $X \sim N(24, 16)$, write down its probability density function.				
(iii)	If the mean of normal distribution is 55, what is its median and mode?				(iv)	For $Z \sim N(0, 1)$, find Q_2 and P_{50} .		
(v)	In a normal distribution, the Mean and Standard deviation are 25 and 5 respectively. Find (i) M.D (ii) Q.D							
(vi)	Define estimator.		(vii)	A random sample of 16 packs of margarine has an average contents of 195grams and a Standard deviation of 9grams. Find the point estimator of μ .				
(viii)	Define simple hypothesis.		(ix)	Clarify the term type-I error.		(x)	If $t = 2.3$, $n = 10$, $\mu = 5$, $S = 3$. Find $\bar{X}$.	
(xi)	Explain the term high level language.			(xii)	What is computer?			
3. Write answers of any eight parts.						8 × 2 = 16		
(i)	Explain sampling.		(ii)	Differentiate between parameter and statistic.		(iii)	Describe standard error.	
(iv)	If $n = 500$, $\pi = 0.75$, $N = 4000$. Find μ_p and σ_p^2 when sampling is done without replacement							
(v)	For the given population 7, 8, 9, 9 find all possible samples of size $n = 2$ (w.r.)							
(vi)	If $n = 100$, $\sigma_x^2 = 36$. Find the standard deviation of population.				(vii)	Describe simple linear regression.		
(viii)	Explain correlation coefficient.		(ix)	Differentiate between positive and negative correlation.				
(x)	Given $\bar{X} = 45$, $\bar{Y} = 120$, $a_{yx} = 15$. Find the value of b_{yx} .				(xi)	If $r = 0.48$, $S_x = 4$, $S_y = 36$. Find S_y .		
(xii)	If $n = 10$, $\Sigma(x - \bar{x})^2 = 170$, $\Sigma(y - \bar{y})^2 = 140$, $\Sigma(x - \bar{x})(y - \bar{y}) = 92$. Calculate the two regression coefficients.							
4. Write answers of any six parts.						6 × 2 = 12		
(i)	Define association of attributes.							
(ii)	Compute the coefficient of rank correlation if $n = 9$ and $\Sigma d^2 = 10$.							
(iii)	Write the formula for finding coefficient of association for two attributes A and B.							
(iv)	What is meant by noise in time series?							
(v)	Write additive model of time series.							
(vi)	Define seasonal variation.							
(vii)	What are disadvantages of Semi-averages method?							
(viii)	Find the value of 'b' slope of the line by semi-averages method.		Year	2020	2021	2022	2023	2024
			Y	5	7	8	10	12
(ix)	Find trend values if least square trend line in $\hat{y} = 89 + 7.1x$ with origin at 2000 for data years 1998, 1999, 2000, 2001, 2002							
SECTION-II								
NOTE: Write answers of any three questions.								
5.(a)	If $X \sim N(36, 25)$, find Q_1 and Q_3 .							4
(b)	If mean of normal distribution is 100 and S.D is 20. Then find (i) Area between 65 and 85 (ii) Area below 85.							4
6.(a)	Take all possible samples of size "2" without replacement from the population 2, 4, 6, 8, and 10. Construct sampling distribution of means also verify that $\mu_{\bar{X}} = \mu$.							4
(b)	If $n_1 = 2$, $\sigma_1^2 = 5$, $\mu_1 = 4$, $n_2 = 3$, $\sigma_2^2 = 2.25$, $\mu_2 = 1.5$, calculate mean and variance of sampling distribution of $\bar{X}_1 - \bar{X}_2$.							4
7.(a)	Given a random sample of 25 values from a normal population which mean unknown and $\sigma = 5$ Sample mean is 45 Compute 99% confidence interval for population mean ' μ '.							4
(b)	A basketball player has hit on 60% of his shots from the floor. If on the next 100 shorts he makes 70 baskets, would you say that his shooting has improved? Use 0.02 level of significance.							4
8.(a)	Four identical money boxes contain different numbers of a particular type of coin and no coin of other types. The information on the combined weights, is given below:							4
	No. of coins in box		10	20	30	40		
	Combined weight of coins and box		312	509	682	865		
	Estimate the regression line of Y on X. Estimate from your regression line, the weight of an empty box.							
(b)	The coefficient of correlation for a sample of "20" pairs of observations is 0.6. If $\bar{x} = 12$, $\bar{y} = 20$, $S_x = 1.5$ and $S_y = 2$, then estimate lines of regression.							4
9.(a)	Fit a straight line from the following data by taking origin between 1993 and 1994.							4
	Years	1991	1992	1993	1994	1995	1996	
	Values	1.2	1.5	1.8	2.5	2.0	2.2	
(b)	Calculate coefficient of association between tempers of brothers and sisters from the following data: Good natured brothers and Good natured sisters = 1230 Good natured brothers and Sullen sisters = 850 Sullen brothers and Good natured sisters = 530 Sullen brothers and Sullen sisters = 980							4

PAPER CODE: 4181		2026 (1 st -A)		Roll No: _____	
		INTERMEDIATE PART-II (12 th Class)			
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	In a normal curve, total area under the curve is:	0.50	1	2	10
2	If $\mu = 30$ and $\sigma = 5$, Z for $X=25$ is:	-1	1	Zero	5
3	Normal curve is:	Skewed left	Skewed right	Symmetric	Irregular
4	A census includes:	Part of population	Half population	Sample	Whole population
5	The mean of sampling distribution of sample proportion is equal to:	μ	π	$\mu_{\bar{x}}$	$\sigma_{\bar{x}}^2$
6	If $N \rightarrow \infty$ then $\frac{N-n}{N-1}$ is:	∞	0	1	Undefined
7	Interval estimate provides:	One value	Random number	No estimate	Range of values
8	A two tailed test checks:	Both directions	Randomness	Only one direction	No direction
9	Type-I error means:	Accept true H_0	Reject true H_0	Accept false H_0	Reject false H_0
10	Correlation coefficients lies between:	-1 to +1	Zero to 10	-10 to +10	1 to 100
11	In regression line "a" represents:	Slope	Mean	Error	Intercept
12	$\sum e_i^2$, the sum of the squares of residuals is:	Maximum	Zero	Minimum	One
13	For a 3x3 contingency table, the number of degrees of freedom is:	3	6	9	4
14	When $\sum d^2 = 0$, the rank correlation equals to:	1	Zero	-1	-1 and +1
15	The difference between the actual value and the trend value is called:	Slope	Residual	Intercept	Sum of residuals
16	Irregular variation is measured by:	Festivals	Weather cycles	Random events	Long-term growth
17	RAM is:	Permanent memory	Temporary memory	Input device	Output device

PAPER CODE: 4183		2026 (1 st -A)		Roll No:	
INTERMEDIATE PART-II (12 th Class)					
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	When $\sum d^2 = 0$, the rank correlation equals to:	1 ✓	Zero	-1	-1 and +1
2	The difference between the actual value and the trend value is called:	Slope	Residual ✓	Intercept	Sum of residuals
3	Irregular variation is measured by:	Festivals	Weather cycles ✓	Random events	Long-term growth
4	RAM is:	Permanent memory	Temporary memory ✓	Input device	Output device
5	In a normal curve, total area under the curve is:	0.50	1 ✓	2	10
6	If $\mu = 30$ and $\sigma = 5$, Z for X=25 is:	-1 ✓	1	Zero	5
7	Normal curve is:	Skewed left	Skewed right	Symmetric ✓	Irregular
8	A census includes:	Part of population	Half population	Sample	Whole population ✓
9	The mean of sampling distribution of sample proportion is equal to:	μ	π ✓	μ_x	σ_x^2
10	If $N \rightarrow \infty$ then $\frac{N-n}{N-1}$ is:	∞	0	1 ✓	Undefined
11	Interval estimate provides:	One value	Random number	No estimate	Range of values ✓
12	A two tailed test checks:	Both directions ✓	Randomness	Only one direction	No direction
13	Type-I error means:	Accept true H_0	Reject true H_0	Accept false H_0	Reject false H_0
14	Correlation coefficients lies between:	-1 to +1	Zero to 10	-10 to +10	1 to 100
15	In regression line "a" represents:	Slope	Mean	Error	Intercept ✓
16	$\sum e_i^2$, the sum of the squares of residuals is:	Maximum	Zero	Minimum ✓	One
17	For a 3x3 contingency table, the number of degrees of freedom is:	3	6	9	4 ✓

PAPER CODE: 4185		2026 (1 st -A)		Roll No: _____	
INTERMEDIATE PART-II (12 th Class)					
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 $N \rightarrow \infty$ then $\frac{N-n}{N-1}$ is:	∞	0	1 ✓	Undefined
2	Interval estimate provides:	One value	Random number	No estimate	Range of values ✓
3	A two tailed test checks:	Both directions ✓	Randomness	Only one direction	No direction
4	Type-I error means:	Accept true H_0	Reject true H_0 ✓	Accept false H_0	Reject false H_0
5	Correlation coefficients lies between:	-1 to +1 ✓	Zero to 10	-10 to +10	1 to 100
6	In regression line "a" represents:	Slope	Mean	Error	Intercept ✓
7	$\sum e_i^2$, the sum of the squares of residuals is:	Maximum	Zero	Minimum ✓	One
8	For a 3x3 contingency table, the number of degrees of freedom is:	3	6	9	4 ✓
9	When $\sum d^2 = 0$, the rank correlation equals to:	1 ✓	Zero	-1	-1 and +1
10	The difference between the actual value and the trend value is called:	Slope	Residual ✓	Intercept	Sum of residuals
11	Irregular variation is measured by:	Festivals	Weather cycles	Random events ✓	Long-term growth
12	RAM is:	Permanent memory	Temporary memory	Input device	Output device
13	In a normal curve, total area under the curve is:	0.50	1 ✓	2	10
14	If $\mu = 30$ and $\sigma = 5$, Z for X=25 is:	-1 ✓	1	Zero	5
15	Normal curve is:	Skewed left	Skewed right	Symmetric ✓	Irregular
16	A census includes:	Part of population	Half population	Sample	Whole population ✓
17	The mean of sampling distribution of sample proportion is equal to:	μ	π ✓	$\mu_{\bar{X}}$	$\sigma_{\bar{X}}^2$

PAPER CODE: 4187		2026 (1 st -A)		Roll No:	
		INTERMEDIATE PART-II (12 th Class)			
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	Correlation coefficients lies between:	-1 to +1 ✓	Zero to 10	-10 to +10	1 to 100
2	In regression line "a " represents:	Slope	Mean	Error	Intercept ✓
3	$\sum e_i^2$, the sum of the squares of residuals is:	Maximum	Zero	Minimum ✓	One
4	For a 3x3 contingency table, the number of degrees of freedom is:	3	6	9	4 ✓
5	When $\sum d^2 = 0$, the rank correlation equals to:	1 ✓	Zero	-1	-1 and +1
6	The difference between the actual value and the trend value is called:	Slope	Residual ✓	Intercept	Sum of residuals
7	Irregular variation is measured by:	Festivals	Weather cycles	Random events ✓	Long-term growth
8	RAM is:	Permanent memory	Temporary memory ✓	Input device	Output device
9	In a normal curve, total area under the curve is:	0.50	1 ✓	2	10
10	If $\mu = 30$ and $\sigma = 5$, Z for X=25 is:	-1 ✓	1	Zero	5
11	Normal curve is:	Skewed left	Skewed right	Symmetric ✓	Irregular
12	A census includes:	Part of population	Half population	Sample ✓	Whole population ✓
13	The mean of sampling distribution of sample proportion is equal to:	μ	π ✓	$\mu_{\bar{x}}$	$\sigma_{\bar{x}}^2$
14	If $N \rightarrow \infty$ then $\frac{N-n}{N-1}$ is:	∞	0	1 ✓	Undefined
15	Interval estimate provides:	One value	Random number ✓	No estimate	Range of values ✓
16	A two tailed test checks:	Both directions ✓	Randomness	Only one direction	No direction
17	Type-I error means:	Accept true H_0	Reject true H_0 ✓	Accept false H_0	Reject false H_0