

INTERMEDIATE PART-II (12th CLASS) (SPECIAL EXAMINATION)**STATISTICS PAPER-II**

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. Write short answers to any eight parts.****8 × 2 = 16**

- (i) Define normal distribution.
- (ii) If X is $N(60, 25)$, find quartile deviation.
- (iii) Find the area under the normal curve between $\mu - \sigma$ and $\mu + \sigma$.
- (iv) How are mean, median and mode of normal distribution related with one another?
- (v) What is maximum ordinate of the normal distribution?
- (vi) Find total area of the normal curve.
- (vii) Define unbiasedness. Give an example.
- (viii) Define best estimator.
- (ix) Define pooled estimator of population mean.
- (x) Define simple hypothesis.
- (xi) Define rejection region and acceptance region.
- (xii) What are the critical values? Where do they come from?

3. Write short answers to any eight parts.**8 × 2 = 16**

- (i) Enlist the two disadvantages of sampling.
- (ii) Define population.
- (iii) Define sampling without replacement.
- (iv) Define probability sampling.
- (v) Define Bias.
- (vi) Given $N = 310$, $n = 10$, $\sigma_{\bar{X}} = 35$, if sampling is done with replacement find σ .
- (vii) Define principle of least square.
- (viii) Define regressor.
- (ix) If $b = -0.76$, $d = -0.82$ then find ' r '.
- (x) Define perfect positive correlation.
- (xi) Write down two formulas for regression coefficient " b ".
- (xii) What is range of ' r '.

4. Write short answers to any six parts.**6 × 2 = 12**

- (i) Define negative attributes.
- (ii) What is cell frequency?
- (iii) What is positive association?
- (iv) Given $n = 100$, $(A) = 60$, $(B) = 40$ if A and B are independent events then find (AB)
- (v) What is analysis of a time series?
- (vi) What is accidental movement?
- (vii) Define cyclical fluctuation.
- (viii) Write down the Additive model of a time series to be assumed to follow.
- (ix) Give any two methods of estimation of secular trend.

SECTION-II**NOTE: Attempt any three questions.****3 × 8 = 24**

5.(a) If X is $N(100, 64)$, find (i) $P(90 \leq x \leq 115)$ (ii) $P(X > 110)$ 4

(b) In normal distribution with $\mu = 30$ and $\sigma = 8$, find two points containing middle 95% area between them. 4

6.(a) A population consists of values 0, 3, 6 and 9. Take all possible simple random samples of size 3 without replacement. Form the sampling distribution of sample mean $\bar{X}$. Find the mean and standard error of $\bar{X}$. 4

(b) Suppose that 60% of a city population favours public finding for a proposed recreational facility. If 150 persons are to be randomly selected and interviewed, what is the mean and standard error of the sample proportion favouring this issue. 4

7.(a) A random sample of size 400 is selected from a population of size 10,000, with variance 100. The sample mean is found to be $\bar{X} = 80$, construct 95% confidence interval for " μ ". 4

(b) Test the hypothesis $H_0; \mu = 100$ at $\alpha = 5\%$ using the data given in part "a". 4

8.(a) Compute the correlation co-efficient for the following data: 4

X	2	4	5	6	8	11
Y	18	12	10	8	7	5

(b) Determine the estimated regression equation $\hat{Y} = a + bX$ for the following data: 4
 $n = 10, \sum X = 20, \sum Y = 260, \sum XY = 3490, \sum X^2 = 3144$

9.(a) Calculate the coefficient of association from the following data: 4

	Slept well	Did not sleep well
Took sleeping pills	44	10
Took sugar pills	81	35

(b) For the following data, find the equation of semi average linear trend and trend values: 4

Years	1972	1973	1974	1975	1976	1977	1978
Values	238	392	414	547	562	588	604

STATISTICS PAPER-II

TIME ALLOWED: 20 Minutes

OBJECTIVE

MAXIMUM MARKS: 17

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Q.No.1

- (1) The mean of standard normal distribution is:

(A) 0	(B) 1	(C) 100	(D) ∞
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- (2) The mean deviation in normal distribution is:

(A) $\frac{3}{4} \sigma$	(B) $\frac{4}{5} \sigma$	(C) $\frac{7}{8} \sigma$	(D) $\frac{2}{3} \sigma$
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- (3) The shape of normal distribution is:

(A) Lepto Kurtic	(B) Meso Kurtic	(C) Platy Kurtic	(D) Skewed
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- (4) A sample is a part of the:

(A) Sample survey	(B) Sampling	(C) Population	(D) Content
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- (5) The mean of sampling distribution of $\bar{X}$ is always equal to:

(A) μ	(B) σ	(C) $\mu - \sigma$	(D) $\frac{\sigma}{\sqrt{n}}$
-----------	--------------	--------------------	-------------------------------
- (6) Given $N = 5$ and $n = 3$ in a simple random sampling without replacement, how many possible samples are there:

(A) 15	(B) 10	(C) 60	(D) 12.5
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- (7) The confidence co-efficient of 95% has " α " value:

(A) 0.05	(B) 0.02	(C) 0.5	(D) 0.01
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- (8) A point estimation is used to estimate the unknown true value of population:

(A) Data	(B) Parameter	(C) Constant	(D) Estimate
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- (9) Type-II error is denoted by:

(A) $1 - \beta$	(B) $1 + \beta$	(C) β	(D) $1 - \alpha$
-----------------	-----------------	-------------	------------------
- (10) Accept H_0 , if H_0 is false is a:

(A) No error	(B) Type-I-error	(C) Type-II-error	(D) Standard error
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- (11) In $\hat{Y} = a + bX$, b is the:

(A) Y - intercept	(B) Slope	(C) X - intercept	(D) Trend value
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- (12) If $r_{xy} = 0.84$ then r_{yx} is:

(A) -0.84	(B) -0.42	(C) 0.42	(D) 0.84
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- (13) The independent variable is also called:

(A) Regressor	(B) Predictand	(C) Explained variable	(D) Response
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- (14) If $AB < \frac{(A)(B)}{n}$, the association between 'A' and 'B' is:

(A) Negative	(B) Positive	(C) Independent	(D) Both A & B
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- (15) For $r \times c$ contingency table, the number of degrees of freedom is equal to:

(A) $(r - 1)(c - 1)$	(B) $(r - 1) + (c - 1)$	(C) 1	(D) $(r \times c) - 1$
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- (16) Components of time series are:

(A) 4	(B) 3	(C) 2	(D) 1
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- (17) Damages due to floods, strikes and fires are called _____ movements.

(A) Irregular	(B) Secular	(C) seasonal	(D) Cyclical
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- (12) The mean of standard normal distribution is:

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- (13) The mean deviation in normal distribution is:

(A) $\frac{3}{4}\sigma$	(B) $\frac{4}{5}\sigma$	(C) $\frac{7}{8}\sigma$	(D) $\frac{2}{3}\sigma$
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- (14) The shape of normal distribution is:

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BOARD OF INTERMEDIATE AND SECONDARY EDUCATION, MULTAN.
OBJECTIVE KEY FOR INTERMEDIATE ANNUAL EXAMINATION, 2021

Special

Name of Subject: Statistics Session: _____

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

مرثقیٹ بابت تصحیح سوالیہ پرچہ مارکنگ Key

ہم نے مضمون Statistics پرچہ II گروپ انٹرمیڈیٹ پارٹ سیکنڈ سٹانڈرڈ 2021ء کا سوالیہ پرچہ انشائیہ و معروضی (Subjective & Objective) کو بنظر عمیق چیک کر لیا ہے یہ پرچہ ALP 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: 06-12-21

S.#	Name	Designation	Institution	Mobile No	Signature
1	Samina Kausar	AP	G. D.C. (w) Chungi #14 mtn	0301-7480468	
2	M. Naeem Ali	Associate Professor	Govt. College 7 Science mtn.	03006347755	
3	M. Irfan Umar	SSS	Govt. Lab. Model HSS Bosa Road, Multan	03006346983	

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	Dr. Muhammad Kashif	AP	Govt. Graduate College Civil Lines, Multan.	0300-7328109	
2					

تاریخ