

BOARD OF INTERMEDIATE AND SECONDARY EDUCATION, MULTAN.
OBJECTIVE KEY FOR INTERMEDIATE ANNUAL EXAMINATION, 2022

Name of Subject: **STATISTICS**

Session: **A/22**

22/06/22

(106)

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

سرٹیفکیٹ بابت صحیح سوالیہ پرچہ امارنگ Key

ہم نے مضمون **STATISTICS** پرچہ **B** گروپ **---** انٹرمیڈیٹ سالانہ امتحان 2022ء 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: **27-6-2022**

S.#	Name	Designation	Institution	Mobile No	Signature
1	Dr. Muhammad Kashif	A/P	Govt. Associated College Civil Lines, Multan	0300- 7328109	M. Kashif
2	M. Irfan Umar	SSS	Govt. Lab. Model HSS Basant Road, Multan	0300 6346983	M. Irfan Umar
3					

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

1	Mahamud Naeem A/P	Associate Professor	Govt. Graduate College of Science, Multan	03006347755	M. Naeem
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27-06-2022 تاریخ

INTERMEDIATE PART-II (12th CLASS)

(11)

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) Write down the p.d.f of standard normal probability distribution.
- (ii) Describe any four properties of normal distribution.
- (iii) Compute $P(Z > 0)$ if $Z \sim N(0, 1)$
- (iv) In a normal distribution $\mu = 100$, $\sigma = 5$ find second and fourth moments about mean.
- (v) A normal distribution has mean 10 and standard deviation 2. Calculate β_1 & β_2 .
- (vi) Explain what is meant by estimator?
- (vii) Describe the level of significance.
- (viii) What is meant by unbiasedness?
- (ix) Write down the definition of test statistic.
- (x) If $s_1^2 = 1.43$, $s_2^2 = 5.21$, $n_1 = 10$, $n_2 = 10$. Find s_p .
- (xi) Differentiate between Ram and Rom.
- (xii) What is meant by soft copy?

3. Write short answers to any eight parts.

8 × 2 = 16

- (i) Define sampling.
- (ii) Write the properties of sampling distribution of sample mean (W.R.)
- (iii) If $N = 5$, $n = 2$, $\sigma^2 = 10$ find $\sigma_{(\bar{X})}^2$ when sampling is done W.O.R.
- (iv) Define sampling error.
- (v) What is meant by sampling frame?
- (vi) Define sample.
- (vii) Define Regression with help of example.
- (viii) Give two examples of independent variable in Regression.
- (ix) Write any two properties of correlation coefficient.
- (x) Write any formula of b_{yx} .
- (xi) If $b_{yx} = -.90$ and $b_{xy} = -.80$ find r .
- (xii) What is meant by positive correlation?

4. Write short answers to any six parts.

6 × 2 = 12

- (i) Define attribute with example.
- (ii) Given that χ^2 (Chi-square) = 26.38 and $N = 200$, find Pearson's coefficient of mean square contingency.
- (iii) Define association of attributes.
- (iv) Define a contingency table.
- (v) What is meant by "analysis of time series"?
- (vi) Define irregular variations with example.
- (vii) Given $\hat{Y} = 128 + 4X$ and $X = -1, 0, 1, 2$ find $\sum \hat{Y}$.
- (viii) Given an example of cyclical variations.
- (ix) What are moving averages?

(2)

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

- 5.(a) If the random variable Z has the standard normal distribution, find: 4
 (i) $P(Z < 1.46)$ (ii) $P(Z > 2.58)$ (iii) $P(Z > -1.96)$ (iv) $P(0.56 < Z < 1.99)$
- (b) The time required by a nurse to inject a shot of penicillin has been observed to be normally distributed, with a mean of $\mu = 30$ seconds and a standard deviation of $\sigma = 10$ seconds. Find (i) P_{10} (ii) P_{90} 4
- 6.(a) The heights of 1500 students are normally distributed with mean of 68 inches and a standard deviation of 2.5 inches. If 300 random samples of size 25 are drawn from this population, determine the expected mean and standard deviation of the sampling distribution of means if sampling is done; (i) with replacement (ii) without replacement 4
- (b) There are five digits in a population 2, 4, 5, 7 and 10. Draw all possible samples of size 3 without replacement and find the sample proportion of even digits in each sample and verify that $E(\hat{P}) = P(\text{Population Proportion})$. 4
- 7.(a) Find a 90% confidence interval for the mean of a normal distribution if $\sigma = 2$ and a sample of size 8 gave the values 9, 14, 10, 12, 7, 13, 11, 12. 4
- (b) Let X is $N(\mu, 100)$ and $\bar{X}$ be the mean of a random sample of 64 observations of X , given that $\bar{X} = 15$. Test $H_0 : \mu = 12$ against the alternative $H_1 : \mu > 12$. Use $\alpha = 0.05$ 4
- 8.(a) Find the two regression co-efficients for following information: 4
 $n = 10$, $\sum(X - \bar{X})^2 = 170$, $\sum(Y - \bar{Y})^2 = 140$, $\sum(X - \bar{X})(Y - \bar{Y}) = 92$
- (b) For the following set of data use $U = X - 1000$ and $V = \frac{Y - 250}{5}$ to find the product moment correlation co-efficient. 4
- | | | | | | | | | |
|---|------|------|------|------|------|------|------|------|
| X | 1000 | 1012 | 1009 | 1007 | 1010 | 1015 | 1010 | 1011 |
| Y | 235 | 240 | 245 | 250 | 255 | 260 | 265 | 270 |
- 9.(a) Find whether 'A' and 'B' are independent, positively associated or negatively associated (A) = 30, (B) = 60, (AB) = 12, $n = 150$ 4
- (b) Compute the trend values by the method of semi-averages for the following data: 4
- | | | | | | | | |
|------|------|------|------|------|------|------|------|
| Year | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 |
| Y | 874 | 1024 | 1168 | 1405 | 1664 | 1958 | 2258 |

STATISTICS PAPER-II

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 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. 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) In a standard normal distribution mean is equal to:
 - (A) -1
 - (B) 0
 - (C) 1
 - (D) 2
- (2) The maximum ordinate of normal distribution at $X = \mu$ is:
 - (A) $\frac{1}{2\pi\sqrt{\sigma}}$
 - (B) $\frac{1}{\sigma\sqrt{2\pi}}$
 - (C) $\frac{1}{\sqrt{2\pi}}$
 - (D) $\frac{1}{\sqrt{2\pi\sigma}}$
- (3) In normal distribution mean, median and mode are:
 - (A) Not equal
 - (B) Positive
 - (C) Equal
 - (D) Negative
- (4) The simple random sampling is:
 - (A) Non probability sampling
 - (B) Probability sampling
 - (C) Systematic sampling
 - (D) Quota sampling
- (5) The standard error increases when the sample size is:
 - (A) Increased
 - (B) Fixed
 - (C) Decreased
 - (D) Small
- (6) The finite population correction factor is:
 - (A) $\frac{n}{N}$
 - (B) $\frac{N-n}{N-1}$
 - (C) $\frac{N}{n}$
 - (D) $\sqrt{\frac{N-n}{N-1}}$
- (7) The width of a confidence interval is decreased if $(1-\alpha)$ is:
 - (A) Decreased
 - (B) Increased
 - (C) Equal
 - (D) Unchanged
- (8) Suppose that sample mean $\bar{X} = 100$ and upper limit of a 90% confidence interval for μ is 112 what is the lower limit of this confidence interval?
 - (A) 98
 - (B) 92
 - (C) 88
 - (D) 80
- (9) Accepting H_0 and H_1 is true is a:
 - (A) Type I error
 - (B) Type II error
 - (C) Correct decision
 - (D) Standard error
- (10) Which of the followings is a simple hypothesis? if $\theta_0 = 15$
 - (A) $\theta < \theta_0$
 - (B) $\theta > \theta_0$
 - (C) $\theta \neq \theta_0$
 - (D) $\theta = \theta_0$
- (11) The regression equation always passes through point:
 - (A) (X, Y)
 - (B) $(\bar{X}, \bar{Y})$
 - (C) $(\bar{X}, Y)$
 - (D) $(X, \bar{Y})$
- (12) The independent variable is also called:
 - (A) Regressor
 - (B) Regressand
 - (C) Predictand
 - (D) Explained
- (13) The eye colour of 20 men is:
 - (A) Variable
 - (B) Quantitative variable
 - (C) Attribute
 - (D) Continuous
- (14) Presence of attribute is denoted by:
 - (A) Greek letters
 - (B) Capital letters
 - (C) Small letters
 - (D) Capital Latin letters
- (15) The sum of the squares of the residuals $\sum e^2$ is:
 - (A) Maximum
 - (B) Zero
 - (C) Minimum
 - (D) One
- (16) The systematic component of time series which follows regular pattern of variation is called:
 - (A) Signal
 - (B) Noise
 - (C) Error
 - (D) Model
- (17) The mechanical devices that make up the computer are called:
 - (A) Software
 - (B) Hardware
 - (C) Program
 - (D) Softcopy

STATISTICS PAPER-II

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