

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

07/22

Name of Subject: STATISTICS Session: 2022 (A)

Q.Nos	Paper Code 2181	Paper Code 2183	Paper Code 2185	Paper Code 2187
1	B	C	D	C
2	D	A	C	A
3	C	B	C	B
4	C	D	C	D
5	C	B	A	D
6	A	D	B	B
7	B	C	D	A
8	D	C	D	B
9	D	C	B	A
10	B	A	A	C
11	A	B	B	A
12	B	D	A	B
13	A	D	C	D
14	C	B	A	B
15	A	A	B	D
16	B	B	D	C
17	D	A	B	C
18	X	X	X	X
19	X	X	X	X
20	X	X	X	X

سرٹیفکیٹ بابت صحیح سوالیہ پرچہ امارنگ Key

ہم نے مضمون STATISTICS پرچہ First گروپ First 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 مارنگ ہدایات / مارنگ سکیم / Rubrics بھی تیار کر دی گئی ہیں۔

Prepared & Checked By:

Dated: 14-7-2022

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15-7-22 تاریخ

INTERMEDIATE PART-I (11th CLASS)

STATISTICS PAPER-I

TIME ALLOWED: 2.40 Hours

MAXIMUM MARKS: 68

SUBJECTIVE

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

SECTION-I

2. **Attempt any eight parts.** 8 × 2 = 16
- (i) How is the term constant defined?
 - (ii) Expand the summation sign (a) $\sum_{i=1}^5 y_i$ (b) $\sum_{i=5}^8 (y_i - u)$
 - (iii) Find the mean and the sum of first n natural number.
 - (iv) If $\bar{x} = 20$ and $y = 5x + 10$, then find \bar{y}
 - (v) Calculate G.M of 1, 1, 8.
 - (vi) What are the two merits of median?
 - (vii) Define mode with example.
 - (viii) If $X_1 = 2$ and $X_2 = 8$. Show that A.M > G.M > H.M.
 - (ix) Define simple and composite index number.
 - (x) What are the two shortcomings of index number?
 - (xi) If $\sum p_1q_0 = 31237$, $\sum p_0q_0 = 29025$, Paasche's index number is 104.87. Find Fisher's Index Number.
 - (xii) Define CPI number (Consumer Price Index Number).
3. **Attempt any eight parts.** 8 × 2 = 16
- (i) Define Relative frequency.
 - (ii) Enlist the main parts of a table.
 - (iii) Define Mean Deviation.
 - (iv) Given mean = 200, C.V = 7. Find the value of Variance.
 - (v) What are the types of dispersion?
 - (vi) Given that $Q_3 = 178.25$ and $Q.D = 53.725$ then find the value of Q_1 .
 - (vii) If $S_K = 0.32$, mean = 29.6, and mode = 24.8. Find the value of S.D.
 - (viii) Draw the shape of the curve for the Meso-kurtic, Platy-kurtic and Lepto-kurtic distributions.
 - (ix) Define set and subset.
 - (x) What do you understand by Random experiment?
 - (xi) Define conditional probability.
 - (xii) Given $P(A) = 0.6$, $P(B) = 0.5$, $P(A \cup B) = 0.9$ then find (a) $P\left(\frac{A}{B}\right) = ?$ (b) $P(A \cap B) = ?$
4. **Attempt any six parts.** 6 × 2 = 12
- (i) Given $x = 2, 4, 6$ and $p(x) = \frac{2}{6}, \frac{2}{6}, \frac{2}{6}$ compute $E(x)$.
 - (ii) What is a random experiment? Also give an example.
 - (iii) Describe any two properties of Mathematical Expectation.
 - (iv) If $\text{Var}(x) = 3$, compute $\text{Var}(2.x)$
 - (v) Given that $E(X) = 200$ and C.V = 7%. Find $\text{Var}(x)$.
 - (vi) In a Binomial distribution if, $n = 5$, $q = \frac{1}{2}$. Find $P(x = 4)$.
 - (vii) Is it possible that in a binomial distribution, Mean = 6 and variance = 7?
 - (viii) In a hypergeometric distribution if, $n = 5$, $k = 4$, $N = 11$ then compute its mean and variance.
 - (ix) A committee of size 3 is selected from 4 men and 2 women. Find the probability that there is only one man in the committee.

SECTION-II**NOTE: Attempt any three questions.**

- 5.(a) The following table gives the marks obtained by a batch of 5 candidates in an examination in History, Statistics and Economics: 4

Roll No.	History	Statistics	Economics
1	41	46	50
2	35	50	52
3	38	39	41
4	34	30	46
5	30	38	39

In which subject level of knowledge is highest?

- (b) Find harmonic mean for the following data: 4

x	12	14	16	18	20	22
f	1	4	6	10	7	2

- 6.(a) Find the co-efficient of Quartile deviation from the data given below: 4

Classes	25 – 50	50 – 75	75 – 100	100 – 125	125 – 150	150 – 175
f	10	12	16	17	20	18

- (b) From the given data: 2, 5, 6, 6, 8, 9, 12, 13, 16, 23 compute the mean deviation from
(a) Mean (ii) Median 4

- 7.(a) Compute the chain indices by using mean as an average from the following prices of three items: 4

Year	A	B	C
2010	82	78	120
2011	63	55	129
2012	105	88	112
2013	94	76	166

- (b) Three coins are tossed simultaneously. Find the probability of occurring
(a) No head (b) 1 head (c) 2 head 4

- 8.(a) A continuous random variable 'X' that can assume values between 2 and 5 has a density function given by $f(x) = \frac{2(1+x)}{27}$ find (a) $P(x \leq 4)$ (b) $P(3 \leq x \leq 4)$ 4

- (b) Given a random variable 'X' with $E(x) = 0.63$ and $\text{Var}(x) = 0.2331$
Find (i) $E(x^2)$ (ii) C.V. (x) 4

- 9.(a) If 'X' is the number of successes with probability of success $\frac{1}{4}$ in each of 5 independent trials.
Find (i) $P(X = 0)$ (ii) $P(X \leq 2)$ 4

- (b) A committee of size 5 is to be selected at random from 3 women and 5 men.
Find the expected number of women on the committee. 4



STATISTICS PAPER-I

TIME ALLOWED: 20 Minutes
MAXIMUM MARKS: 17

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 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) The purpose of the sample is to draw inference about:

(A) Sample	(B) Population	(C) Constant	(D) Array
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- (2) If there are no gaps between upper and lower value of next class, such classes are called:

(A) Mid points	(B) Class limits	(C) Class marks	(D) Class boundaries
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- (3) A graph of time series is called:

(A) Pie chart	(B) Histogram	(C) Histogram	(D) Frequency polygon
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- (4) The most repeated value in a set of data is called:

(A) Arithmetic mean	(B) Median	(C) Mode	(D) Geometric mean
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- (5) If $\sum(X - 15) = 10$, $\sum(X - 25) = 0$, then Arithmetic Mean is:

(A) 15	(B) 10	(C) 25	(D) 0
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- (6) Which one is correct?

(A) $A.M \geq G.M \geq H.M$	(B) $H.M \geq G.M \geq A.M$
(C) $G.M \geq H.M \geq A.M$	(D) $A.M \geq H.M \geq G.M$
- (7) If $Q_3 = 20$ and $Q_1 = 10$, then quartile deviation is:

(A) 0	(B) 5	(C) 10	(D) 20
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- (8) The mean deviation is minimum when deviations are taken from:

(A) Zero	(B) Mode	(C) Mean	(D) Median
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- (9) Which one is correct for symmetrical distribution?

(A) Mean > Mode	(B) Mean > Median	(C) Median > Mode	(D) Mean = Mode
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- (10) In chain base method the base period is:

(A) Fixed	(B) Changed	(C) Both A and B	(D) None of these
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- (11) Base year quantities are used as weights for:

(A) Laspeyre's Price Index	(B) Paasche's Price Index	(C) Fisher's Price Index	(D) None of these
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- (12) The probability of sample space "S" is:

(A) Zero	(B) One	(C) Two	(D) Three
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- (13) 5C_4 is equals to:

(A) 5	(B) 20	(C) 100	(D) 120
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- (14) An expected value of a random variable is equals to:

(A) Variance	(B) Standard deviation	(C) Mean	(D) Coefficient of variation
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- (15) If $E(x) = 2$, $E(x^2) = 6$ then $\text{var}(X)$ is:

(A) 2	(B) 6	(C) 4	(D) 1
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- (16) In a binomial distribution the successive trials are:

(A) Dependent	(B) Independent	(C) Infinite	(D) None of these
---------------	-----------------	--------------	-------------------
- (17) In a hypergeometric distribution, $N = 10$, $n = 2$, $K = 3$ then its mean is:

(A) 0	(B) 0.2	(C) 0.4	(D) 0.6
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STATISTICS PAPER-I

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 (A) 2 (B) 6 (C) 4 (D) 1
- (3) In a binomial distribution the successive trials are:
 (A) Dependent (B) Independent (C) Infinite (D) None of these
- (4) In a hypergeometric distribution, $N = 10$, $n = 2$, $K = 3$ then its mean is:
 (A) 0 (B) 0.2 (C) 0.4 (D) 0.6
- (5) The purpose of the sample is to draw inference about:
 (A) Sample (B) Population (C) Constant (D) Array
- (6) If there are no gaps between upper and lower value of next class, such classes are called:
 (A) Mid points (B) Class limits (C) Class marks (D) Class boundaries
- (7) A graph of time series is called:
 (A) Pie chart (B) Histogram (C) Historigram (D) Frequency polygon
- (8) The most repeated value in a set of data is called:
 (A) Arithmetic mean (B) Median (C) Mode (D) Geometric mean
- (9) If $\sum(X - 15) = 10$, $\sum(X - 25) = 0$, then Arithmetic Mean is:
 (A) 15 (B) 10 (C) 25 (D) 0
- (10) Which one is correct?
 (A) $A.M \geq G.M \geq H.M$ (B) $H.M \geq G.M \geq A.M$
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(C) $G.M \geq H.M \geq A.M$ (D) $A.M \geq H.M \geq G.M$
- (6) If $Q_3 = 20$ and $Q_1 = 10$, then quartile deviation is:
(A) 0 (B) 5 (C) 10 (D) 20
- (7) The mean deviation is minimum when deviations are taken from:
(A) Zero (B) Mode (C) Mean (D) Median
- (8) Which one is correct for symmetrical distribution?
(A) Mean > Mode (B) Mean > Median (C) Median > Mode (D) Mean = Mode
- (9) In chain base method the base period is:
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- (14) If $E(x) = 2$, $E(x^2) = 6$ then $\text{var}(X)$ is:
(A) 2 (B) 6 (C) 4 (D) 1
- (15) In a binomial distribution the successive trials are:
(A) Dependent (B) Independent (C) Infinite (D) None of these
- (16) In a hypergeometric distribution, $N = 10$, $n = 2$, $K = 3$ then its mean is:
(A) 0 (B) 0.2 (C) 0.4 (D) 0.6
- (17) The purpose of the sample is to draw inference about:
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