2017 (A) Roll No: _____

INTERMEDIATE PART-I (11th CLASS)

STATISTICS PAPER-I (NEW SCHEME) (SESSION 2015-2017)

TIME ALLOWED: 2.40 Hours **SUBJECTIVE** MAXIMUM MARKS: 68

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) Define STATISTICS.

(ii) What is Discrete Variable? Give any example.

(iii) Give any two qualities of a good average.

(iv) What do you mean by Harmonic Mean?

(v) Sum of deviations of 10 values from $A = 50$ is 500, what will be the value of Arithmetic Mean?

(vi) Calculate Geometric Mean for the values 16, 1, 4.

(vii) What will be the mode if Mean = 30 and Median = 40?

(viii) Define Index Number.

(ix) Write name of base year weighted index number.

(x) What do you mean by Consumer Price Index Number?

(xi) If $\sum p_n q_n = 294$ and $\sum p_o q_n = 269$, find current year weighted index number.

(xii) If $\sum IW = 16500$ and $\sum p_o q_o = 110$, then find consumer price index number by Family Budget Method.

3. **Attempt any eight parts.** **8 × 2 = 16**

(i) What is meant by Frequency Polygon?

(ii) Distinguish between Histogram and Historigram.

(iii) Define Quartile Deviation and how it is calculated?

(iv) Write down only various absolute measures of Dispersion.

(v) Distinguish between Positive and Negative Skewness.

(vi) Explain Moments about Mean.

(vii) Given Mean = 50, Median = 48 and coefficient of skewness = 1. Find the value of Variance.

(viii) Given Mean = 50, Median = 48 and standard deviation = 6. Find Karl Pearson's Coefficient of skewness.

(ix) What is meant by Random Experiment?

(x) Explain the concept of dependent events.

(xi) Suppose $P(A) = \frac{1}{4}$, $P(B) = \frac{1}{3}$ and $P(A \cup B) = \frac{1}{2}$. Determine $P(A \cap B)$.

(xii) If $P(A) = 0.2$, $P(B) = 0.4$ and $P(A/B) = 0.375$. Find $P(A \text{ and } B)$.

4. **Attempt any six parts.** **6 × 2 = 12**

(i) How can random numbers be generated?

(ii) Write two properties of Expectation.

(iii) Define Probability Distribution.

(iv) If $E(x) = 5$, find $E(-3x + 2)$

(v) If $E(x) = 3$ and $E(x^2) = 12$, then find variance of x.

(vi) Define Binomial Probability Distribution.

(vii) Write two properties of Hypergeometric Experiment.

(viii) In a binomial distribution $n = 10$ and $p = 0.6$. Find Mean and Variance of the Distribution.

(ix) Given $N = 10$, $k = 5$ and $n = 3$. Find $P(x < 1)$.

P.T.O

SECTION-II

NOTE: - Attempt any three questions.

5.(a) Compute G.M of the data. 4

Age (years)	11 – 20	21 – 30	31 – 40	41 – 50	51 – 60	61 - 70
f	12	14	26	35	23	5

(b) The deviations from $X = 22.5$ of 10 different values of X axe -12, -8.5, 3.0, 0, 2.5, 6.6, 9.2, 1.6, 0.5 and 0.4. Find the lower and upper quartiles of variable X. 4

6.(a) Find M.D from the following Data:- 4

Group	2 – 4	4 – 6	6 – 8	8 – 10	10 - 12
Frequency	3	5	6	7	3

(b) Lower and upper quartiles of a distribution are 142.36 and 167.73 respectively, While median is 153.50. find coefficient of skewness. 4

7.(a) Compute Chain Index Numbers for the following data taking 1997 as base year:- 4

Years	1997	1998	1999	2000	2001	2002	2003
Prices	180	185	194	200	204	218	220

(b) Three coins are tossed. What is the probability of getting? 4
(i) exactly 2 heads (ii) at least 2 heads

8.(a) Given $E(X) = 5$, $E(X^2) = 36$. Find the Mean and Variance of $2x - 5$. 4

(b) If it rains, a rain coat dealer can earn Rs.500 per day. If it is fair he can lose Rs.100 per day. What is his expectation if the probability of rain is 0.4? 4

9.(a) Workers have 20% chances of suffering from an occupational disease, what is probability that out of 6 workers (i) Exactly 2 will suffer from the disease (ii) At least 2 will suffer from the disease? 4

(b) A committee of size 5 is selected at random from 3 women and 5 men. Show that expected number of women is $\frac{nk}{N}$. 4

Paper Code Number: 2181

2017 (A) Roll No._____

INTERMEDIATE PART-I (11th CLASS)

STATISTICS PAPER-I (NEW SCHEME) (SESSION 2015-2017)

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 circle in front of that question number. Use marker or pen to fill the circles. Cutting or filling two or more circles will result in zero mark in that question. Attempt as many questions as given in objective type question paper and leave others blank. 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 data in their original form is called:-

(A) Secondary Data (B) Primary Data (C) Unordered Data (D) None of these

(2) The frequency of a class divided by total frequency is called:-

(A) Class Frequency (B) Total Frequency (C) Relative Frequency (D) Cumulative Frequency

(3) Graph of a Symmetrical Distribution is:-

(A) U – shaped (B) Bell shaped (C) J – shaped (D) Bar shapes

(4) Sum of absolute deviations of the values is least when deviations ate taken from:-

(A) Mean (B) Median (C) Mode (D) H.M

(5) $\Sigma(X-20)=25$ and $\Sigma(X-18)=0$ then mean is:- (A) Zero (B) 25 (C) 18 (D) 10

(6) If the values are $-2,-3,-5,-10$ then range is:- (A) -12 (B) 12 (C) 8 (D) -8

(7) The second moment about Mean is equal to:-

(A) Zero (B) Mean (C) Variance (D) Standard Deviation

(8) In a Symmetrical Distribution, μ_3 is:-

(A) Zero (B) One (C) Three (D) Four

(9) Base year weighted index numbers are:-

(A) Laspeyre's (B) Paasche's (C) Fisher (D) Marshall-Edgeworth

(10) Fisher Index Number is written as:-

(A) $\sqrt{\frac{L}{P}}$ (B) $\sqrt{\frac{P}{L}}$ (C) $\sqrt{L\times P}$ (D) None of these

(11) An event that contains more than one outcome is called:-

(A) Simple Event (B) Compound Event (C) Impossible Event (D) None of these

(12) $P(A)=0.4$, $P(B)=0.3$, If A and B are mutually exclusive events, then $P(A\cup B)$ is:-

(A) 0.4 (B) 0.3 (C) 0.7 (D) 1.2

(13) The life time of a light bulb is:-

(A) Discrete r.v (B) Continuous r.v (C) Constant (D) None of these

(14) If 'C' is a non-random variable, then $E(C)=$_____.

(A) Zero (B) 1 (C) 'C' (D) n P

(15) If $y=ax+b$, where 'a' and 'b' are constant, $Var(Y)=$_____

(A) $a\,Var(X)$ (B) $a^2\,Var(X)$ (C) $Var(X)$ (D) $Var(X)+a$

(16) For a binomial distribution, relationship between mean and variance is:-

(A) Mean = Variance (B) Mean > Variance (C) Mean < Variance (D) None of these

(17) In hypergeometric experiment, the trials are:-

(A) Dependent (B) Independent (C) Both A and B (D) None of these

2017 (A) Roll No: _____

INTERMEDIATE PART-I (11th CLASS)

STATISTICS PAPER-I (OLD SCHEME) (SESSION 2012-2014)

TIME ALLOWED: 3.10 Hours **SUBJECTIVE** MAXIMUM MARKS: 83

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) Define Statistics in Singular Sense.

(ii) Differentiate between Population and Sample.

(iii) Define Geometric Mean (G.M).

(iv) Highlight some demerits of Mode.

(v) If for 10 observations $\Sigma(x-23)=-17$ find the value of A.M.

(vi) Average of 5 observations is 70. The first two observations are 50 and 70 and the last two observations are 60 and 80. Find middle value.

(vii) Find Median of 0, -3, -5, 2, 3

(viii) Define Laspeyres Index.

(ix) Define Paasches Index.

(x) Define Fisher Ideal Index.

(xi) Which average is the most useful average to be used for averaging the index numbers?

(xii) Define Fixed base Method.

3. Attempt any eight parts. **8 × 2 = 16**

(i) What is Classification?

(ii) Define the term Ogive.

(iii) Define Range and Coefficient of Range.

(iv) Define the Standard Deviation.

(v) Write a short note on Coefficient of Variation.

(vi) The Mean of 200 items is 48 and their standard deviation is 3. Find the sum of squares of all items.

(vii) The first four moments about mean of a distribution are 0, 4, 6 and 48. Find b_2.

(viii) Given Mean = 100, Mode = 95 and Standard Deviation = 10. Find Coefficient of Skewness.

(ix) Write a short note on Sample Space.

(x) Define Venn diagram.

(xi) A pair dice is rolled. What is the probability of getting same number on both faces?

(xii) Write down the statement of Addition Law of Probability for two not mutually exclusive events.

4. Attempt any six parts. **6 × 2 = 12**

(i) Define a Random Variable.

(ii) What is a Discrete Probability Distribution?

(iii) Define Mathematical expectation of a Random Variable X.

(iv) Given that $E(x)=20$ and $CV=17\%$. Find $Var(x)$.

(v) What is Distribution Function?

(vi) Define Binomial Experiment.

(vii) If $p=\frac{1}{3}$, $n=6$, then find Mean and Variance of Binomial Probability Distribution.

(viii) Write down properties of Hyper-geometric experiment.

(ix) Find Mean of Hyper-geometric Probability Distribution if $N=12$, $n=4$, $k=5$

P.T.O

SECTION-II

NOTE: - Attempt any three questions.

5.(a) Compute Mode of the Data. 4

Hourly wages	4 – 6	6 – 8	8 – 10	10 – 12	12 – 14	14 - 16
No. of employees	13	111	182	105	19	7

(b) Find two numbers whose Mean is 9 and Geometric Mean is 7.2. 4

6.(a) Find the Coefficient of Variation. 4

x	10	11	12	13	14	15
f	1	4	9	12	5	4

(b) The first three moments of a distribution about the value 2 of the variable are 1, 16 and – 40. Show that the Mean is 3, the variance is 15 and m_3 is -86. 4

7.(a) Calculate Fisher's Ideal Index Number for the year 2010 taking 2005 as base from the following data:- 4

	Price		Quantity	
Commodity	2005	2010	2005	2010
A	70	75	300	310
B	72	80	240	275
C	25	32	132	148
D	60	85	280	360

(b) What is the probability of throwing either "sum 7" or "Sum more than 10" with two dice?4

8.(a) A discrete probability distribution of a random variable 'X' is given in the following table:- 4

x	0	1	2
$P(x)$	$3/28$	$15/28$	$10/28$

Find Mean and Variance of x.

(b) A continuous random variable 'X' has the following density function.
$f(x) = ax + 3;\ \ 2 \le x \le 8$ find $P(3 < x < 5)$ 4

9.(a) If $n = 4$ and $p = \frac{3}{4}$; find complete binomial probability distribution. 4

(b) A committee of size 3 is selected from 4 men and 2 women, without replacement. Find Probability Distribution of women on the committee. 4

SECTION-III (PRACTICAL)

10. Attempt any three parts. **3 × 5 = 15**

(A) Find Median and Mode of the following data:-

Classes	0 – 5	5 – 10	10 – 15	15 – 20	20 – 25
f	10	14	19	17	8

(B) Find coefficient of variation from the following:-

C – I	2 – 4	5 – 7	8 – 10	11 – 13	14 - 16
f	8	12	17	10	5

(C) Construct Fisher Ideal Index Number from the following data:-

Commodity	p_0	q_0	p_1	q_1
A	64	270	75	276
B	40	124	45	118
C	18	130	21	121

(D) $f(X) = CX,\ 0 \le X \le 2$ is a probability density function.
Find value of C and $P(X < 1)$, $P\left(\frac{1}{2} < X < \frac{3}{2}\right)$

(E) Write complete hyper-geometric distribution for $N = 10,\ n = 3,\ k = 3,\ X = 0, 1, 2, 3$

Paper Code Number: 6181

2017 (A) Roll No._____

INTERMEDIATE PART-I (11th CLASS)

STATISTICS PAPER-I (OLD SCHEME) (SESSION 2012-2014)

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 circle in front of that question number. Use marker or pen to fill the circles. Cutting or filling two or more circles will result in zero mark in that question. Attempt as many questions as given in objective type question paper and leave others blank. No credit will be awarded in case BUBBLES are not filled. Do not solve question 6on this sheet of OBJECTIVE PAPER.

Q.No.1

(1) In the plural sense, Statistics means:-

(A) Methods (B) Numerical Data (C) Sample values (D) Population values

(2) The process of arranging data into rows and columns is called:-

(A) Frequency distribution (B) Classification (C) Tabulation (D) Array

(3) Data classified by attributes is called:-

(A) Continuous data (B) Quantitative data (C) Qualitative data (D) Grouped data

(4) When a distribution is symmetrical and has one mode, the highest point on the curve is called the:-

(A) Mode (B) Median (C) Mean (D) All of these

(5) _____ is the first step in calculating the Median of a data set.

(A)Average the two middle values of the data set (B) Array the data

(C) Determine the relative weights of the data values in terms of importance (D) None of these

(6) _____ is a relative measure of dispersion.

(A) Standard Deviation (B) Variance (C) Coefficient of variance (D) All of these

(7) The sum of absolute deviations is a minimum if these deviations are taken from the:-

(A) Mean (B) Median (C) Mode (D) All of these

(8) If $S.D.(x) = 5$, then $S.D.\left(\frac{2x+5}{2}\right)$ is:-

(A) 5 (B) 10 (C) 15 (D) 7.5

(9) If all the values considered in calculating an index are of equal importance, the index is:-

(A) Weighted (B) Simple (C) Un-weighted (D) None of these

(10) The weights used in a price index are:-

(A) Percentage of total price (B) Quantities (C) Average of prices (D) None of these

(11) The probability of drawing a king of spades from a pack of 52 cards is:-

(A) $\frac{1}{4}$ (B) $\frac{1}{13}$ (C) $\frac{1}{26}$ (D) $\frac{1}{52}$

(12) If one event is uneffected by the outcome of another event, the two events are said to be:-

(A) Dependent (B) Independent (C) Mutually exclusive (D) Both B and C

(13) Random numbers can be generated:-

(A) Manually (B) Mechanically (C) Both A and B (D) None of these

(14) If the random variable 'X' denotes the number of heads when three distinct coins are tossed, then 'X' assumes the values:-

(A) 0, 1, 2, 3 (B) 1, 3, 3, 1 (C) 1, 2, 3 (D) None of these

(15) The parameters of the binomial distribution $b(x; n, p)$ are:-

(A) x and n (B) x and p (C) n and p (D) x, n and p

(16) _____ is true for the binomial distribution.

(A) Mean > Variance (B) Mean < Variance (C) Mean = Variance (D) Mean = S.D.

(17) The hypergeometric distribution has _____ parameters.

(A) 2 (B) 3 (C) 1 (D) 4

BOARD OF INTERMEDIATE AND SECONDARY EDUCATION, MULTAN

OBJECTIVE KEY FOR INTER (PART-I / II) Annual Examination, 2017

Name of Subject Statistics (New Scheme) Session (old schem)

Group: 1st Group: 2nd

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

Q. Nos.	Paper Code 6181	Paper Code 6183	Paper Code 6185	Paper Code 6187
1.	B	A	B	B
2.	C	C	A	C
3.	C	A	C	B
4.	D	B	B	A
5.	B	B	D	C
6.	C	C	B	B
7.	B	C	C	D
8.	A	D	A	B
9.	C	B	C	C
10.	B	C	A	A
11.	D	B	B	C
12.	B	A	B	A
13.	C	C	C	B
14.	A	B	C	B
15.	C	D	D	C
16.	A	B	B	C
17.	B	C	C	D
18.				
19.				
20.				