

Roll No. _____ to be filled in by the candidate.

(NEW PATTERN)

Paper Code	8	6	4	1
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Sessions; 2012-2014 & 2013-2015

Statistics (Commerce Group) (Objective Type)

Time: 20 Minutes

Marks: 15

NOTE: Write answers to the questions on objective answer sheet provided. Four possible answers A,B,C & D to each question are given. Which answer you consider correct, fill the corresponding circle A,B,C or D given in front of each question with Marker or pen ink on the answer sheet provided.

- 1.1. Census information are:
 - (A) primary data (B) secondary data (C) both (D) discrete
2. To collect the data from a business man about his income we use method:
 - (A) Direct personal interview (B) Investigation through questionnaire
 - (C) Indirect personal investigation (D) Telephone interview
3. The data is collected from:
 - (A) One source (B) Three sources (C) Two sources (D) Four sources
4. The word "Statistics" is used in which sense?
 - (A) Singular (B) Plural (C) Objects (D) Results
5. Classification has how many important basis?
 - (A) 2 (B) 4 (C) 5 (D) 6
6. Graph of the frequency distribution is called:
 - (A) Histogram (B) Ogive (C) Histogram (D) Pie Chart
7. What is median of 10, 16, 18, 7, 10, 16, 18, 19, 4, 0?
 - (A) 13 (B) 10 (C) 16 (D) 18
8. If a distribution has two mode, then it is called:
 - (A) Uni-model (B) Bi-model (C) Tri-model (D) No-model
9. If $Y=3x+5$ then $\bar{Y}$ is equal to:
 - (A) $3\bar{Y}$ (B) $3\bar{x}+5$ (C) $\bar{Y}+5$ (D) $3(\bar{x}+5)$
10. Link relatives can be obtained by dividing P_n by:
 - (A) P_{n-1} (B) P_o (C) q_o (D) q_{n-1}
11. Which of the following is called an ideal index number?
 - (A) Laspeyr's index (B) Paasche's index (C) Both A and B (D) Fisher's index
12. Index number is a:
 - (A) Ratio (B) Proportion (C) Fraction (D) Number
13. A random experiment has how many possible outcomes?
 - (A) 1 (B) 2 (C) 3 (D) 2 or more
14. The probability of an impossible event is equal to zero:
 - (A) always (B) never (C) oftenly (D) none of these
15. The probability that the sum is odd if two dice are thrown:
 - (A) 18/36 (B) 9/36 (C) 6/36 (D) 12/36

Roll No. _____ to be filled in by the candidate.

(NEW PATTERN)

Subject Code 6 0 6 4

Statistics (Commerce Group) (Essay Type)

Sessions;2012-2014 & 2013-2015

Time: 2:10 Hours

Marks: 60

Section -I**2. Write short answers of any six parts from the following.**

2 x 6 =12

- Define statistics in singular sense.
- Differentiate between a variable and a constant.
- What does "data" mean?
- Enlist the properties of A.M.
- Give the disadvantages of Median.
- Differentiate between descriptive statistics and inferential statistics.
- What do you understand by measure of location (Central Tendency)?
- Define mode and give an empirical relationship between mean, median and mode.
- For a frequency distribution of a variable X, it is given that $\bar{X} = 10 + 5\mu$, $\sum f = 125$, $\sum fu = -45$. Find the value of Mean.

3. Write short answers of any six parts from the following.

2 x 6 =12

- What is an ungrouped data?
- Name the method used to collect the primary data.
- What is variable? Give an example.
- Name the two quantitative variables.
- What is an index number?
- Write the names of three types of index number.
- Define price relatives and give its formula.
- What is an index number of a base period?
- Name the methods used for selection of base period.

4. Write short answers of any six parts from the following.

2 x 6 =12

- What is frequency distribution?
- What are the different methods of presentation of data?
- What is an ogive curve?
- Name the types of diagrams.
- Name the types of Bar chart.
- What do you understand by venn-diagram?
- Define the term sample space.
- Explain the difference of sets.
- What is a random experiment?

Section -II**Note: Attempt any three questions from the following.**

8x3=24

5.(a) The following data represent reported sales (in millions of rupees) for 26 companies in the shoe industry.

36	36	54	38	17	41	22	33	22	32	31	21	18
46	36	11	31	29	12	23	51	12	13	37	33	37

Construct a frequency distribution using classes with a width of 10 i.e. 10 - 20, 20 - 30...etc.

(b) Draw Histogram from the following frequency distribution give the weight of 35 objects measured to the nearest k.g.

Weight	6 - 8	9 - 11	12 - 17	18 - 20	21 - 23
Frequency	4	6	10	3	12

6.(a) The deviation from 10.5 of 10 items are given below:

1.3	2.0	2.9	8.5	4.6	3.4	8.2	9.3	7.4	5.6
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Calculate Arithmetic Mean.

(b) Find Arithmetic Mean of the following data by step deviation method.

Marks	30 - 39	40 - 49	50 - 59	60 - 69	70 - 79	80 - 89
f	1	3	11	21	43	32

7.(a) Compute median from the following data:

Classes	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 34	35 - 39
No of Students	1	3	5	9	6	4	2

(b) Compute mode from the given data:

Groups	3.0 - 3.9	4.0 - 4.9	5.0 - 5.9	6.0 - 6.9	7.0 - 7.9	8.0 - 8.9
Frequency	13	27	40	30	16	4

8.(a) Convert the following prices into price relatives using chain base method taking 1994 as base year.

Years	1994	1995	1996	1997	1998	1999	2000
Prices	36	45	56	64	70	80	90

(b) Given the following informations:

$$\sum p_1 q_0 = 41140, \sum p_0 q_0 = 35310, \sum p_1 q_1 = 46707, \sum p_0 q_1 = 40048,$$

$$\sum p_2 q_0 = 39644, \sum p_2 q_2 = 51724, \sum p_0 q_2 = 47376.$$

Compute base year weighted and current year weighted price index.

9.(a) Show in a single throw with two dice, the chances of throwing sum more than 7 is equal to that of sum less than 7.**(b)** A bag contains 4 white and 2 black balls. Two balls are selected at random without replacement.

Find probability: (i) Both are white (ii) Both have the same colour



Roll No. _____ to be filled in by the candidate.

(OLD PATTERN)

Paper Code

4

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1

Session;2011-2013

Statistics (Commerce Group) (Objective Type)

Time: 15 Minutes

Marks: 10

NOTE: Write answers to the questions on objective answer sheet provided. Four possible answers A,B,C & D to each question are given. Which answer you consider correct, fill the corresponding circle A,B,C or D given in front of each question with Marker or pen ink on the answer sheet provided.

1.1. Parameters are related to:

- (A) sample (B) population (C) median (D) mean

2. Results obtained by counting are:

- (A) discrete (B) continuous (C) both A and B (D) none of these

3. The graph of a time series is:

- (A) Histogram (B) Ogive (C) Histogram (D) none of these

4. The average of lower and upper class limits are:

- (A) class interval (B) class width (C) class mark (D) class frequency

5. If $\bar{X} = 6$ and $y = 3x + 6$ then $\bar{y}$ is:

- (A) 20 (B) 21 (C) 24 (D) none of these

6. Mode of the series 2, 3, 3, 3, 4, 4, 5, 6 is:

- (A) 2 (B) 4 (C) 3 (D) none

7. If $\sum p_n q_n = 505$ & $\sum p_o q_n = 425$ then Laspeyre's index number is:

- (A) 120.12 (B) 119.63 (C) 118.82 (D) none of these

8. $\frac{p_n}{p_{n-1}} \times 100$ is equal to:

- (A) Price relative (B) Link relative (C) Chain indices (D) none of these

9. If $P(A) = 1/2$ then $P(\bar{A})$ is:

- (A) $1/2$ (B) 0 (C) 1 (D) none of these

10. If A & B are two independent events then $P(A \cap B)$ is equal to:

- (A) $P(A/B)$ (B) $P(A).P(B)$ (C) $P(A)+P(B)$ (D) none of these

Roll No. _____ to be filled in by the candidate.

(OLD PATTERN)

Subject Code

4

6

4

Session;2011-2013

Statistics (Commerce Group) (Essay Type)

Time: 1:45 Hours

Marks: 40

Section -I

2. Write short answers of any six parts from the following.

2 x 6 =12

- Highlight the demerits of A.M.
- Differentiate between population and sample.
- Define primary data.
- What do you understand by measure of central tendency?
- Define the Arithmetic Mean.
- What do you understand by the word "Statistics"?
- Define the mode with example.
- For a certain distribution if $\sum (X-15) = 12$, $\sum (X-18) = 0$ and $\sum (X-21) = -10$ then what is the value of A.M.?
- Can the values of mean, median and mode be the same? If yes state the situation.

3. Write short answers of any six parts from the following.

2 x 6 =12

- Define tabulation.
- What is relative frequency distribution?
- Describe ogive.
- Define composite index numbers.
- Define mutually exclusive events.
- Write down sample space when two cubical dices are rolled.
- If link relatives are 100, 120, 102, 105, 118 and 112. Find chain indices.
- Write down formulas of base year weighted index numbers and current year weighted index numbers.
- What is the probability of getting an ace, when a card is selected at random from a deck of 52 cards.

Section -II

Note: Attempt any two questions from the following.

8x2=16

4.(a) Tabulate the following marks into a frequency distribution taking 10 as class interval.

04

109	74	49	103	95	90	118	52	88	101
96	72	56	64	110	97	59	62	96	82
65	85	105	116	91	83	99	82	76	84
89	77	104	110	100	98	97	80	59	60

(b) Make the frequency polygon for the frequency distribution obtained in (a) part of this question.

04

5.(a) Calculate arithmetic mean from the following data:

04

Group	118 - 126	127 - 135	136 - 144	145 - 153	154 - 162	163 - 171	172 - 180
f	3	5	9	12	5	4	2

(b) Calculate the median and mode from the following data:

04

Classes	10 - 20	20 - 30	30 - 40	40 - 50	50 - 60	60 - 70
f	2	7	11	6	4	10

6.(a) The following data shows price of wheat, Rice, Potato and Onion for year 1995 and 2005. If respective weights of four items are 20, 12, 10 and 8. Find cost of living index for 2005, using 1995 as base period.

04

Price \ Items	Wheat	Rice	Potato	Onion
1995	58	118	27	80
2005	160	360	19	84

(b) For two independent events A and B, $P(A)=0.60$ and $P(B)=0.80$. Find $P(A \cup B)$.

04



Roll No. _____ to be filled in by the candidate.

Paper Code

8

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7

Sessions; 2012-2014, 2013-2015 & 2014-2016

Statistics (Commerce Group) (Objective Type)

Time: 20 Minutes

Marks: 15

NOTE: Write answers to the questions on objective answer sheet provided. Four possible answers A,B,C & D to each question are given. Which answer you consider correct, fill the corresponding circle A,B,C or D given in front of each question with Marker or pen ink on the answer sheet provided.

- 1.1. The data having single mode is called:
 - (A) multimodal
 - (B) tri-modal
 - (C) bimodal
 - (D) unimodal
2. Fisher Index Number is called:
 - (A) base year weighted
 - (B) current year weighted
 - (C) ideal index number
 - (D) none of these
3. Index numbers are called:
 - (A) statistical barometer
 - (B) economic barometer
 - (C) mathematical barometer
 - (D) none of these
4. The link relative is defined as:
 - (A) $\frac{P_n}{P_o} \times 100$
 - (B) $\frac{P_n}{P_{n+1}} \times 100$
 - (C) $\frac{P_n}{P_n} \times 100$
 - (D) $\frac{P_n}{P_{n-1}} \times 100$
5. An event which contains more than one sample points is called:
 - (A) sure event
 - (B) compound event
 - (C) impossible event
 - (D) simple event
6. The probability of drawing an ace from 52 playing cards is:
 - (A) 4/52
 - (B) 4/13
 - (C) 3/52
 - (D) 1/52
7. If two coins are tossed, the possible sample points are:
 - (A) 3
 - (B) 4
 - (C) 5
 - (D) 8
8. A numerical quantity computed from sample data is called:
 - (A) parameter
 - (B) statistic
 - (C) statistics
 - (D) constant
9. Inferential statistics deals with:
 - (A) describe the nature of data
 - (B) draw conclusion
 - (C) explain population data
 - (D) none of these
10. Questionnaire method is used in collection of:
 - (A) secondary data
 - (B) primary data
 - (C) grouped data
 - (D) none of these
11. Data classified by attributes is called:
 - (A) quantitative data
 - (B) geographical data
 - (C) temporal data
 - (D) qualitative data
12. Column caption is also called:
 - (A) box head
 - (B) body
 - (C) stub
 - (D) title
13. In classes 25-29 and 30-34 the size of class interval is:
 - (A) 7
 - (B) 6
 - (C) 5
 - (D) 4
14. The most frequent value in any set of data is called:
 - (A) median
 - (B) mean
 - (C) mode
 - (D) weighted mean
15. The sum of deviation of values from their mean is always equal to:
 - (A) zero
 - (B) negative
 - (C) positive
 - (D) one

Roll No. _____ to be filled in by the candidate.

Subject Code 6 0 6 4

Sessions; 2012-2014, 2013-2015 & 2014-2016

Statistics (Commerce Group) (Essay Type)

Time: 2:10 Hours

Marks: 60

Section -I**2. Write short answers of any six parts from the following.****2 x 6 =12**

- Define statistics.
- What is descriptive statistics?
- Define discrete variable.
- Write any two uses of statistics.
- Define an average.
- Write the empirical relation between mean, median and mode.
- Write any two properties of arithmetic mean.
- Define the mode.
- Write any two advantages of median.

3. Write short answers of any six parts from the following.**2 x 6 =12**

- What is data?
- Name the sources of primary data.
- Define secondary data.
- Define ungrouped data.
- Define Fisher's Ideal index number.
- What is simple aggregative index number? Write its formula.
- Define composite Index Number.
- What do you understand by base period and how is it selected?
- Define quantity relative with formula.

4. Write short answers of any six parts from the following.**2 x 6 =12**

- Describe the four bases of classification of data.
- What is the difference between discrete and continuous classes?
- Define the frequency distribution.
- What is the difference between ungrouped and grouped data?
- What is union of sets?
- List the sample space when coin is tossed 3 times.
- Define the mutually exclusive events.
- Given $P(A)=2/3$, $P(B)=1/3$ and $P(A \cap B)=5/12$. Compute $P(A \cup B)$.
- If A and B are two independent events and $P(A)=0.25$, $P(B)=0.6$. Find $P(A \cap B)$.

Section -II**Note: Attempt any three questions from the following.****8x3=24****5.(a)** The marked scored by 40 students of class in mathematics are given below:

81	58	55	68	79	85	43	29	68	54
73	47	35	72	64	95	44	50	77	64
35	79	52	45	54	70	83	62	64	79
92	84	76	63	43	54	38	73	68	52

Prepare a frequency distribution with class size 10 marks.

(b) Construct the histogram from the following distribution of total marks of 30 students of a class.

Marks in mid point	100	120	140	160	180	200
No. of students	5	6	4	7	5	3

6.(a) Calculate A.M by (i) Direct method (ii) using assumed mean as 70, 100, 90, 50, 60, 40, 30, 20, 70, 10, 80.**(b)** Calculate A.M by (i) Direct Method taking $U = \frac{X-87}{5}$

U	-3	-2	-1	0	1	2	3	4	5	6
f	01	06	17	27	20	17	13	10	06	03

7.(a) Calculate Median from the following data:

Class	3 - 4.9	5 - 6.9	7 - 8.9	9 - 10.9	11 - 12.9	13 - 14.9
Frequency	5	22	42	65	41	5

(b) Calculate mode. If mean=32 and median=45.**8.(a)** Compute the chain indices for the following data taking 1997 as base year.

Years	1997	1998	1999	2000	2001
Prices	180	185	194	200	204

(b) Compute base year weighted index number for the year 2003.

	2002		2003	
Item	Price	Quantity	Price	Quantity
A	45	90	93	100
B	37	10	64	11
C	27	3	51	5

9.(a) Two coins are tossed. Write all possible sample points of the sample space S. Find the probability that:

- Two Heads
- Two Tails
- One Head and One Tail.

(b) From a well-shuffled pack of 52 playing cards, two cards are drawn. Find the probability that:

- one is king and one is queen
- Both are black cards

Roll No. _____ to be filled in by the candidate.

Paper Code	4	6	4	1
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Session 2015-2017

Statistics (Commerce Group) (Objective Type)

Time: 15 Minutes

Marks: 10

NOTE: Write answers to the questions on objective answer sheet provided. Four possible answers A,B,C & D to each question are given. Which answer you consider correct, fill the corresponding circle A,B,C or D given in front of each question with Marker or pen ink on the answer sheet provided.

- 1.1. Number of flowers on a tree is variable:

(A) Continuous	(B) Qualitative	(C) Discrete	(D) None
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2. Statistic is a quantity computed from:

(A) Population	(B) Sample	(C) Census	(D) None
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3. Total angles of pie chart are:

(A) 180°C	(B) 90°C	(C) 360°C	(D) 280°C
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4. Arithmetic mean is affected by change of:

(A) Origin	(B) Scale	(C) Both A and B	(D) None
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5. A value which occurs greatest number of times in the data is called:

(A) Mean	(B) Mode	(C) Median	(D) Both B and C
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6. Which average is affected by extreme values:

(A) Mean	(B) Median	(C) Mode	(D) Both B and C
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7. Relatives computed from fixed base are called:

(A) link relatives	(B) chain relatives	(C) price relatives	(D) None
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8. G.M of Laspeyre's and Paasche's Index number is Index:

(A) Base year weighted	(B) Fisher	(C) value	(D) None
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9. The probability of sure event always equal to:

(A) Zero	(B) One	(C) Undefined	(D) Negative
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10. An arrangement of objects in a definite order is called:

(A) Permutation	(B) Combination	(C) Set	(D) None
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Roll No. _____ to be filled in by the candidate.

Session:2015-2017

Statistics(Commerce group) (Essay type)

Time: 1:45 Hours

SECTION-I

Marks: 40

2- Write short answers of any six parts from the following.

2 x 6 =12

- Define statistics.
- What is meant by population?
- Write the names of two sources of secondary data.
- Define the term tabulation.
- What is meant by a frequency distribution?
- What is histogram?
- What is meant by pie-chart?
- Find out A.M if $\sum x = 256$ and $n=8$.
- Write down two advantages of median.

3- Write short answers of any six parts from the following.

2 x 6 =12

- If Median=120 Mode=125 then find Mean using Empirical formula between Mean,Median and Mode.
- Write down the formulas of median and mode for grouped data.
- Define Mean and Median.
- Define an Event.
- Give two examples of simple index number and two examples of composite index number.
- Write down Laspeyre's and Paasch's Price index number formulas.
- Define chain base method.
- Define mutually exclusive events.
- If $P(A)=0.60$ $P(B)=0.30$ then find $P(A \cap B)$ if A and B are independent events.

SECTION-II

Note: Attempt any two questions from the following.

8x2=16

4. (a) The grades in mathematics of 50 students are as under.

78	81	78	68	76	71	60	82	96	83	4
76	78	73	93	59	75	71	65	73	95	
74	71	88	82	62	75	76	63	88	61	
94	53	90	73	65	72	97	74	68	75	
66	75	85	88	60	69	85	57	67	77	

Form a frequency distribution taking interval of 5 grades like 50-54,55-59....etc.

(b) Calculate the average marks from the following data.

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Marks	No of students
0-10	5
10-20	12
20-30	15
30-40	25
40-50	8
50-60	3
60-70	2

5. (a) Find median for the distribution of heights of boys in a school.

4

Height in inches	35-39	40-44	45-49	50-54	55-59	60-64	65-69
No. of boys	12	25	30	55	50	40	38

(b) Construct price index number for year 2002 taking 2000 as base year using:

(i) Laspeyre's method.

(ii) Paasch's method.

4

Commodity	Price		Quantity	
	2000	2002	2000	2002
A	70	75	300	310
B	72	80	240	275
C	25	32	132	148
D	60	85	280	360

6. (a) Two coins are tossed. Find the probability of getting:

4

(i) One head. (ii) Two heads.

(b) A bag contains 5 red, 2 green, 3 blue and 2 yellow balls. Find the probability that balls of all colours are represented in a sample of 4 balls selected at random.

4

Roll No. _____ to be filled in by the candidate.

Paper Code	8	6	4	1
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Sessions;2013-2015&2014-2016

Statistics (Commerce Group) (Objective Type)

Time: 20 Minutes

Marks: 15

NOTE: Write answers to the questions on objective answer sheet provided. Four possible answers A,B,C & D to each question are given. Which answer you consider correct, fill the corresponding circle A,B,C or D given in front of each question with Marker or pen ink on the answer sheet provided.

1.1. The life of T.V. tube is:

- (A) discrete data (B) continuous data (C) Both A and B (D) None of these

2. The word "Statistics" is derived from:

- (A) Latin word (B) Greek word (C) Italian word (D) French word

3. The class mark is defined as:

- (A) class interval (B) class boundaries (C) class limits (D) mid point

4. Total angle of Pie chart is:

- (A) 90° (B) 100° (C) 150° (D) 360°

5. The graph of a symmetrical distribution is:

- (A) U-shaped (B) J.shaped (C) Bell-shaped (D) P-Shaped

6. The median is also called:

- (A) Array (B) Symmetry (C) a positional average (D) None of these

7. A distribution based on two mode is:

- (A) unimodel (B) bimodel (C) multimodel (D) none of these

8. When the values are not equal important, then we compute:

- (A) Simple mean (B) combined mean (C) weighted mean (D) None of these

9. The CPI stands for:

- (A) Cost price Index (B) Chain Price Index
(C) Consumer Price Index (D) None of these

10. Fisher index No. is:

- (A) $\sqrt{\frac{P}{L}}$ (B) $\sqrt{\frac{L}{P}}$ (C) $\sqrt{L+P}$ (D) $\sqrt{L \times P}$

11. Any subset of sample is called:

- (A) Finite set (B) Null set (C) Infinite set (D) Event

12. The probability of drawing a jack from a deck of cards is:

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

13. When two dice are rolled, all possible outcomes are:

- (A) 4 (B) 12 (C) 22 (D) 36

14. If $P(A)=0.5$ then $P(\bar{A})$ is:

- (A) 0.5 (B) 1 (C) 2 (D) 1.05

15. The probability of a sample space (P/S) is:

- (A) 0 (B) 1 (C) 2 (D) 3

Roll No. _____ to be filled in by the candidate.

Sessions;2013-2015&2014-2016

Statistics (Commerce Group) (Essay Type)

Time: 2:10 Hours

Marks: 60

Section -I**2. Write short answers of any six parts from the following.**

2 x 6 =12

- Define statistics.
- Define parameter.
- Write two characteristics of statistics.
- Define variable.
- Find A.M when $\sum x = 308$, $n=7$.
- Find the median of the data. 6,2,3,4,5,2,8.
- Define mode with example.
- Write two properties of arithmetic mean.
- If mean=15 and median=20, what is the value of mode?

3. Write short answers of any six parts from the following.

2 x 6 =12

- What do you understand by secondary data?
- Define index numbers.
- Describe chain base method.
- Define quantitative data with two examples.
- Define link relatives.
- How the secondary data may be obtained through internet?
- Describe the direct personal investigation method for collecting primary data.
- Given $\sum p_o q_o = 362$, $\sum p_1 q_o = 428$. Then find base year weighted index number.
- Define the base period and mention which points should be kept in mind while selection of base.

4. Write short answers of any six parts from the following.

2 x 6 =12

- What is classification?
- Define class mark.
- Define the term class boundry.
- What is pie chart?
- What is empty set?
- Define the term random experiment.
- Define sample space.
- Distinguish between simple and compound events.
- What is the probability of getting sum 5 when two dice thrown?

Section -II**Note: Attempt any three questions from the following.**

8x3=24

5.(a) Prepare a frequency distribution using the following intervals 60-62,63-65 etc.

62	63	65	64	71	67	70	67	65	64
69	66	65	66	65	66	65	70	64	69
69	68	72	65	61	70	60	63	67	68
68									

(b) Consider the following data

Hourly wages(Rs.)	30-49	50-69	70-89	90-109	110-129
No.of persons	04	20	23	35	10

Construct frequency polygon.

6.(a) Calculate the mean marks from the following data by shortcut method:

Marks	0-10	10-20	20-30	30-40	40-50	50-60	60-70
No.of students	5	12	15	25	8	3	2

(b) Calculate the weighted mean of the x values.

X	5.2	5.4	4.6	3.2	2.6
w	5	6	8	3	2

7.(a) The height of 100 college students measured to the nearest inch are given in the following table. Determine median.

Height in inches	63	64	65	66	67	68	69	70	71
No. of students	4	6	10	20	30	13	12	3	2

(b) The following table shows the age distribution of persons in a locality, compute mode.

Age	Below 10	Below 15	Below 20	Below 25	Below 30	Below 35
f	15	32	56	87	108	120

8.(a) Compute the chain indices for the following data.

Years	1945	1946	1947	1948	1949	1950	1951	1952	1953	1954
Price	21.70	18.95	19.70	13.50	15.65	24.85	20.90	19.82	23.75	24.55

(b) For the following data compute Fisher Ideal index number taking 1953 as base.

Commodity	Prices		Quantities	
	1953	1963	1953	1963
A	10	12	120	100
B	8	10	150	130
C	12	13	80	70
D	15	20	60	50

9.(a) Two dice are rolled, what is the probability that: (i) the sum 7 appear. (ii) The sum 12 appear.**(b)** Three coins are tossed, what is the probability that (i) Exactly two heads appear. (ii) Exactly one head appear.



Roll No. _____ to be filled in by the candidate.

Paper Code	4	6	4	5
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Sessions:2015-2017&2016-2018

Statistics (Commerce Group) (Objective Type)

Time: 15 Minutes

Marks: 10

NOTE: Write answers to the questions on objective answer sheet provided. Four possible answers A,B,C & D to each question are given. Which answer you consider correct, fill the corresponding circle A,B,C or D given in front of each question with Marker or pen ink on the answer sheet provided.

1. Link Relative is equal to:

(A) $\frac{P_n}{P_o} \times 100$

(B) $\frac{P_{n-1}}{P_n} \times 100$

(C) $\frac{P_n}{P_{n-1}} \times 100$

(D) $\frac{P_o}{P_n} \times 100$

2. Simple index number involves commodities:

(A) one

(B) two

(C) three

(D) four

3. A balance dice is rolled probability of an even number is:

(A) $\frac{1}{6}$

(B) $\frac{1}{2}$

(C) $\frac{1}{3}$

(D) $\frac{1}{4}$

4. If a coin is tossed twice, then the probability of getting one head and one tail is:

(A) $\frac{1}{4}$

(B) $\frac{2}{4}$

(C) $\frac{3}{4}$

(D) $\frac{2}{3}$

5. π is a:

(A) Constant

(B) Variable

(C) Statistic

(D) Co-efficient

6. Questionnaire method is used in collecting:

(A) Primary data

(B) Secondary data

(C) Fictitious data

(D) Private data

7. The upper and lower class limits are 20 and 30, the mid point of the class is:

(A) 20

(B) 25

(C) 30

(D) 50

8. The sum of the deviations from arithmetic mean is:

(A) one

(B) <0 (C) $=0$ (D) >0

9. The model letter of the word "Statistics" is:

(A) S

(B) T

(C) I

(D) S and T

10. We must arrange the data before calculating:

(A) Mean

(B) Median

(C) Mode

(D) None of these

Roll No. _____ to be filled in by the candidate.

Sessions:2015-2017&2016-2018

Statistics(Commerce group) (Essay type)

Time: 1:45 Hours

SECTION-I

Marks: 40

2 x 6 =12

2- Write short answers of any six parts from the following.

- | | |
|-----------------------------------|---------------------------------|
| i. Define Primary data. | ii. Define Continuous Variable. |
| iii. Define Qualitative variable. | iv. Define Classification. |
| v. Define Tabulation. | vi. Define Histogram. |
| vii. Define Class Interval. | viii. Define Average. |
| ix. Define Mode. | |

3- Write short answers of any six parts from the following.

2 x 6 =12

- | | |
|---|---------------------------------------|
| i. Write two demerits of Median. | ii. Define Central tendency. |
| iii. Find median from 3,17,12,8,25,9. | iv. Define Quantity Index Number. |
| v. Define base year in Index Number. | vi. What is weighted Index Number? |
| vii. What is compound event in probability? | viii. What are equally likely events? |
| ix. Define dependent Events. | |

SECTION-II**Note: Attempt any two questions from the following.**

8x2=16

4. (a) The grades in Statistics of 50 students are as under.

68	76	71	60	82	96	83	76	78	73	4
93	59	75	71	65	78	81	78	73	95	
74	71	88	82	62	75	97	74	68	75	
94	53	90	73	65	72	76	63	88	61	
66	75	85	88	60	69	85	57	67	77	

Make a frequency distribution taking classes as: 50-54,55-59,60-64, etc

(b) Calculate the Arithmetic Mean from the following data.

4

Hourly wages	No of Employees
40-59	13
60-79	23
80-99	101
100-119	182
120-139	105
140-159	19
160-179	7

5. (a) Find Mode for continuous distribution.

4

Group	15-19	20-24	25-29	30-34	35-39
f	3	8	12	9	4

(b) Calculate Fisher's Price Index Number for 2006 taking 2005 as Base year.

4

Items	Price		Quantity	
	2005	2006	2005	2006
A	2	10	50	40
B	3	8	10	50
C	4	4	60	80

6. (a) A fair die is rolled once, what is the probability of obtaining.

4

- (i) Six. (ii) an odd number.

(b) A bag contains 10 light bulbs out of which 3 are defective. If two bulbs are selected at random from the bag, what is the probability that.

- (i) Both are defective. (ii) Both are not defective



Roll No. _____ to be filled in by the candidate.

Paper Code	8	6	4	5
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Statistics (Commerce Group) (Objective Type)

Session;2014-2016

Time: 20 Minutes

Marks: 1

NOTE: Write answers to the questions on objective answer sheet provided. Four possible answers A,B,C & D to each question are given. Which answer you consider correct, fill the corresponding circle A,B,C or D given in front of each question with Marker or pen ink on the answer sheet provided.

- Index number for base period is:
 - 100
 - 200
 - 300
 - 400
- CPI stands for:
 - Chain price Index
 - Complete Price Index
 - Consumer Price Index
 - None of these
- Index numbers are basically classified into:
 - 2 categories
 - 3 categories
 - 4 categories
 - 5 categories
- If A is sure event then P(A) is:
 - 0
 - 1
 - 1
 - 1.5
- The value of Probability cannot be greater than:
 - zero
 - unity
 - sample
 - two
- The non-orderly arrangement of objects is called:
 - Combination
 - Permutation
 - Sample space
 - Factorial
- A measure computed from sample data is called:
 - Parameter
 - Statistics
 - Sample
 - None of these
- Statistics are always:
 - Aggregate of facts
 - Individual
 - Fixed
 - None of these
- Parameter are related to:
 - Sample
 - Population
 - Mean
 - None of these
- Total angle of a pie chart is:
 - 180°
 - 300°
 - 360°
 - 90°
- Proportion is always less or equal to:
 - 4
 - 3
 - 1
 - 5
- Graph of the frequency distribution is called:
 - Histogram
 - Ogive
 - Pie chart
 - Frequency curve
- Averages are also called measures of:
 - Variation
 - Location
 - Skewness
 - Median
- Mean of 5 values is 10, then sum will be:
 - 2
 - 5
 - 50
 - $\frac{5}{10}$
- The notation for mean is:
 - X
 - $\bar{X}$
 - $\tilde{X}$
 - $\bar{X}_w$

Roll No. _____ to be filled in by the candidate.

Session;2014-2016

Statistics (Commerce Group) (Essay Type)

Time: 2:10 Hours

Marks: 60

Section -I**2. Write short answers of any six parts from the following.**

2 x 6 =12

- What is descriptive statistics?
- What is inferential statistics?
- What is primary data?
- Give the properties of Arithmetic mean.
- Define Median.
- Find A.M, given that $x=10+5u$, $\sum fu = 46$ and $n=12$.
- How do we calculate quantiles?
- Write two merits of Median.
- How will you differentiate ordinary mean from weighted mean?

3. Write short answers of any six parts from the following.

2 x 6 =12

- What is the secondary data?
- Name the three sources of Primary data.
- Define the quantitative data.
- How do we collect data through local correspondents?
- What is the base period?
- Define consumer price index number.
- Define link relative in Index numbers.
- Laspeyres index=120, Fisher Index=115. Find Paasches index number.
- What are the different index numbers?

4. Write short answers of any six parts from the following.

2 x 6 =12

- Define Bar Chart.
- Define Class interval.
- What is data?
- What do you mean by discrete variable?
- Define sample space.
- Define mutually exclusive events.
- Calculate probability of two heads when two coins are thrown.
- One coin and one dice are thrown, make sample space of the possible events.
- Write down the law of addition for probability, when events are mutually exclusive.

Section -II**Note: Attempt any three questions from the following.**

8x3=24

5.(a) Tabulate the following marks in a frequency distribution taking 10 as the class interval and 45 as the lowest limit.

109	74	49	103	95	90	118	52	88	101
96	72	56	64	110	97	59	52	96	82
65	85	105	116	91					

(b) Construct a histogram from part(a).**6.(a)** Saleem obtained the following marks in an examination. Find weighted mean if weights 4,3,3,2 and 2 are allotted to the subjects.

English	Urdu	Math	Stat	Physics
73	82	80	57	62

(b) The height of college students is given below. Calculate arithmetic mean.

Height	60-62	63-65	66-68	69-71	72-74
f	5	18	42	27	8

7.(a) Find median of the following observations 64,87,41,58,77,35,90,55,92,33.

Height (in inches)	47	48	49	50	51	52	53	54	55	56
No. of Students	1	3	7	8	15	21	11	8	5	2

Calculate the Mode.

8.(a) For the given data, Compute chain indices of Prices.

Years	2001	2002	2003	2004	2005	2006	2007	2008	2009
Prices	38	46	48	47	49	50	55	60	65

(b) Compute price index number using simple aggregative method for the following data.

Years	Prices			
	A	B	C	D
1980	10	21	6	58
1981	12	27	2	60
1982	14	35	8	61
1983	17	30	10	63
1984	15	42	6	65

9.(a) A coin is tossed thrice. What is the probability of getting (i) At least two heads. (ii) No head.**(b)** Two cards are drawn from well shuffled pack of 52 cards at random. Find the probability that they are.

- Both aces.
- One is king and one is Queen.



Roll No. _____ to be filled in by the candidate.

(For all sessions)

Paper Code

8

6

4

5

Statistics (Commerce Group) (Objective Type)

Time: 15 Minutes

Marks: 10

NOTE: Write answers to the questions on objective answer sheet provided. Four possible answers A,B,C & D to each question are given. Which answer you consider correct, fill the corresponding circle A,B,C or D given in front of each question with Marker or pen ink on the answer sheet provided.

1.1. In chain base method, the base period is:

- (A) Fixed (B) Not-fixed (C) Constant (D) zero

2. Which of the following formula is used for link relative.

- (A) $\frac{P_n}{P_o} \times 100$ (B) $\frac{P_n}{P_{n-1}} \times 100$ (C) $\frac{P_{n-1}}{P_o} \times 100$ (D) $\frac{P_n}{P_{n-1}} \times 100$

3. ${}^6C_3 =$ _____:

- (A) 6 (B) 15 (C) 20 (D) 25

4. When two dice are rolled the possible out comes are:

- (A) 6 (B) 12 (C) 24 (D) 36

5. Parameters are related to:

- (A) Sample (B) Population (C) Mean (D) Median

6. A variable which can take all possible values in an interval is called:

- (A) Continuous variable (B) Discrete variable (C) Qualitative variable (D) Finite variable

7. Total angles of the pie-chart are:

- (A) 270° (B) 300° (C) 320° (D) 360°

8. The graph of frequency distribution is called:

- (A) Histogram (B) Pie-chart (C) Histogram (D) Ogive

9. The mode for the values 4,4,5,6,3,3,2 is:

- (A) 2 (B) 4 (C) 3 (D) 3 and 4

10. Sum of the deviation from mean is:

- (A) =zero (B) <0 (less) (C) >0 (greater) (D) one

Roll No. _____ to be filled in by the candidate.

Statistics(Commerce group) (Essay type)

Time: 1:45 Hours

SECTION-I

Marks: 40

2 x 6 =12

2- Write short answers of any six parts from the following.

- | | |
|---|---|
| i. What is parameter? | ii. Define a variable. |
| iii. What is data? | iv. Explain quantitative variable. |
| v. Describe the frequency distribution. | vi. What do you mean by midpoint or class mark. |
| vii. Explain the term tabulation. | viii. What is the histogram? |
| ix. Describe the advantages of diagram. | |

3- Write short answers of any six parts from the following.

2 x 6 =12

- | | |
|--|--|
| i. What is an average? | ii. Give two properties of arithmetic mean. |
| iii. Find median of the values 5,10,13,15,12,7,9. | iv. Give two demerits of mode. |
| v. Define composite index number. | vi. Define sample space. |
| vii. Define permutation. | viii. Make sample space when two coins are tossed. |
| ix. Given that $\sum P_o q_o = 1500$, $\sum P_n q_o = 2400$. Find Laspeyre's Price index number. | |

SECTION-II

Note: Attempt any two questions from the following.

8x2=16

4. (a) The weights of 30 college students are given below.

130	133	124	121	115	139	137	144	142	133	4
133	128	129	132	131	128	126	132	134	135	
138	130	141	136	135	141	123	126	118	134	

Prepare a frequency distribution taking a class interval of size 5(115-119,120-124,...)

(b) Daily wages of factory workers are given below. Draw cumulative frequency Polygon or Ogive.

Wages	75-79	80-84	85-89	90-94	95-99	100-104
f	2	4	8	11	13	7

5. (a) For the given ungrouped data calculate the mean.

Data=2,5,7,9,12,6,3,5,3,11,15,16,17,20,25,23.

(b) Find the median from the following.

C.Limit	60-62	62-64	64-66	66-68	68-70
F	5	18	42	27	8

6. (a) Calculate index number for years 2006,2007,2008 by taking 2005 as base.

Year	Price		
	Wheat	Rice	Cotton
2005	12	3.00	4.20
2006	12.50	3.25	4.90
2007	13.50	3.50	5.25
2008	15.00	3.75	5.60

(b) Three coins are tossed. What is the probability of getting?

- (i) No head (ii) Atleast 3 head

Statistics (Objective Type)

Time:20 Minutes

Marks:17

NOTE: Write answers to the questions on objective answer sheet provided. Four possible answers A, B, C & D to each question are given. Which answer you consider correct, fill the corresponding circle A, B, C or D given in front of each question with marker or pen ink on the answer sheet provided.

- 1.1. For 3×4 contingency table, the degree of freedom will be :
 (A) 12 (B) 6 (C) 3 (D) 9
2. A characteristic which varies in quality is called :
 (A) Quantitative variable (B) Qualitative variable (C) Attribute (D) Both A & B
3. A business cycle has phases :
 (A) 2 (B) 3 (C) 5 (D) 4
4. The graph of time series is called :
 (A) Histogram (B) Historigram (C) Pie-chart (D) Ogive
5. CPU stands for :
 (A) Central plain unit (B) Central programming unit
 (C) Central processing unit (D) None of these
6. In a normal distribution, X lies between :
 (A) $-\infty$ and 0 (B) $-\infty$ and ∞ (C) 0 and ∞ (D) 0 and 2
7. In normal distribution the value of β_1 and β_2 are :
 (A) 0 and 3 (B) 3 and 0 (C) 0 and 1 (D) 1 and 0
8. In normal distribution the value of Quartile Deviation is :
 (A) $\frac{2}{3}\sigma$ (B) 0.6745σ (C) Both A & B (D) 0.7979σ
9. If sampling is done with replacement, number of possible sample is :
 (A) ${}^N C_n$ (B) $N \times n$ (C) $N + N$ (D) N^n
10. Probability distribution of a sample statistic is called :
 (A) Time (B) Frequency distribution
 (C) Sampling distribution (D) None of these
11. Procedure of selecting a sample from population is called :
 (A) Sample (B) Sampling design (C) Sampling (D) None of these
12. 90% confidence interval for the mean is 53.22 and 64.78, then sample Mean is :
 (A) 59 (B) 49 (C) 69 (D) 118
13. If $n = 8$, $\sum X = 120$, $\sum (X - \bar{X})^2 = 302$. Then unbiased estimated value of the population mean is :
 (A) 15 (B) 120 (C) 8 (D) 302
14. Power of test is denoted by :
 (A) $1 - \alpha$ (B) β (C) α (D) $1 - \beta$
15. If $Y = 2 + 0.6X$, then value of $\hat{Y}$ for $X = 0$ is :
 (A) 2 (B) 0.6 (C) 0.8 (D) 2.6
16. If $b_{xy} = -0.52$ and $b_{yx} = -1.02$ then r_{xy} is :
 (A) 1 (B) 0.73 (C) 0.80 (D) -0.73
17. Dependent variable is also called :
 (A) Regressand (B) Regressor (C) Explanatory variable (D) Predictor

Roll No. _____ to be filled in by the candidate

(For All Sessions)

Statistics (Essay Type)

Time: 2:40 Hours

Section - I

Marks:68

2 x 8 = 16

2- Write short answers of any eight parts from the following.

i. Quartile deviation of a normal distribution is 3.3725. Find the approximate value of S.D and M.D.

iii. In a normal distribution $\mu_4 = 243$. Find μ_2 and μ_3

v. What is standard normal variable?

vii. What is interval estimation?

ix. Define type II error with example.

xi. What is a compiler?

3- Write short answers of any eight parts from the following.

i. Distinguish between population and sample.

iii. Given $n = 25$ and $\sigma_{\bar{X}} = 5$ find the value of σ^2 .

v. Define the standard error.

vii. Define dependent variable in regression model.

ix. What is meant by Y-intercept "a"?

xi. Explain the meaning of regression coefficient.

4- Write short answers of any six parts from the following.

i. Define attributes.

iii. Given $(A) = 200$, $(B) = 800$, $N = 1000$. Find (AB) assuming A and B are independent.

v. Name the four methods used to measure the secular trend.

vii. Give two examples of irregular variation.

ix. What is meant by residual?

ii. In a normal distribution $\mu = 9$ and $Q_3 = 171$. Find S.D (σ)iv. What is the role of standard deviation σ in the normal curve.

vi. Write any two properties of best estimator.

viii. If $t = 2.3$, $n = 10$, $\mu = 5$, $S = 3$, find $\bar{X}$

x. Define one tailed and two failed tests.

xii. Differentiate between hard and soft copy.

2 x 8 = 16

ii. Explain the term sampling frame.

iv. Given $\mu = 6$, $n = 2$ and $\sigma^2 = 10.8$ find $E(S^2)$.

vi. Draw all possible samples of size 3 without replacement from the population 0, 1, 2, 3, 4.

viii. If $a = 130$ and $b = 3.9$ write regression equation of Y on X.x. Given $Y = 6, 8, 10$ and $X = 0, 1, 2$. Find "b".xii. The regression equation of X on Y is $\hat{X} = 5y - 7$ and regression equation of Y on X is $\hat{Y} = 0.1X + 1.7$. Find correlation coefficient.

2 x 6 = 12

ii. Define positive association.

iv. Define the term dichotomy.

vi. Given $Y = 16, 18, 20, 22, 24$ and $X = -2, -1, 0, 1, 2$, and $\hat{Y} = 20 + 2x$, find $\sum \hat{Y}$.

viii. What is semi - averages method?

Section - II

8 x 3 = 24

NOTE : Answer any three questions from the following.

5.(a) In a normal distribution $Q_1 = 20$ and $Q_3 = 30$ find its Mean and Mean deviation.

6.(a) Take all possible samples of size 2 with replacement from the population 2, 3, 4, 5.

(i) Calculate means of the samples.

(ii) Construct sampling distribution of means.

(iii) Prove that $\mu_{\bar{X}} = \mu$.7.(a) A normal population has a variance of 100. A random sample of size 16 selected from the population has a mean of 52.5. Construct the 90% confidence interval estimate of population mean, μ . Interpret the result.8.(a) For 9 observations on supply (X) and price (Y) the following data was obtained
 $\sum (x - 90) = -25$, $\sum (x - 90)^2 = 301$, $\sum (y - 127) = 12$, $\sum (y - 127)^2 = 1006$, $\sum (x - 90)(y - 127) = -469$
Obtain the estimated line of regression of X on Y and estimate the supply when the price is Rs.125.

(b) Compute the correlation co-efficient between the variables X and Y represented in the following table.

x	2	4	5	6	8	11
y	18	12	10	8	7	5

9.(a) Given the following data
 $(AB) = 110$, $(\alpha B) = 90$,
 $(\alpha \beta) = 290$, $(\alpha \beta) = 510$. Discuss association(b) Let $X \sim N(30, 25)$. Find (i) $P(X > 35)$ (ii) $P(X < 22)$

04+04

(b) Find unbiased estimates of μ and σ from the sample of values 13, 18, 26, 34, 45 and 48.

04+04

(b) The sex distribution of 98 births reported in a newspaper was 52 boys and 46 girls. Is this consistent with an equal sex division in the population? Use 5% level of significance.

04+04

(b) Obtain the semi-averages trend line and find the trend values from the following data.

04+04

Years	Y
1973	201
1974	238
1975	392
1976	507
1977	484
1978	649
1979	742