

BBA II SEMESTER

BUSINESS STATISTICS – QUESTION BANK

Unit I: Introduction & Data Presentation

1. Explain the meaning, scope and limitations of statistics in detail.
2. Discuss various methods of data collection with examples.
3. Explain different types of diagrams and graphs used in business statistics.
4. Construct a frequency distribution and draw a histogram and frequency polygon for a suitable dataset.
5. Explain the steps in classification and tabulation with suitable examples.

Unit II: Measures of Central Tendency & Dispersion

1. What is Range? How to Calculate Range of the given data?
2. What is coefficient of variation?
3. Write a note on skewness and kurtosis.
4. Explain geometric mean and harmonic mean with examples.
5. What is Combined Mean?

Unit III: Correlation & Regression

1. Define correlation
2. Discuss the different types of Correlation Coefficient
3. What is a scatter diagram?
4. Differentiate between Correlation and Regression.

Unit IV: Time Series & Index Numbers

1. Define time series and its components.
2. Write short notes on seasonal and cyclical variations.
3. Define index numbers and their uses.
4. Differentiate between Laspeyres and Paasche index numbers.

Unit V: Probability & Sampling

1. Define probability and its types.
2. What is conditional probability?
3. State addition theorem of probability.
4. Explain joint and marginal probability.
5. Define population and sample.
6. Explain sample space, events, and types of events with examples.
7. Describe probability and non-probability sampling techniques in detail.

PRACTICE PROBLEMS

UNIT 2: CENTRAL TENDANCY AND VARIATION

1. The following table shows the daily wages of workers in a factory. Compute the Mean.

Class Interval	Frequency
10–12	15
12–14	12
14–16	18
16–18	20
18–20	15

1.

2. The following data represent the weekly study hours of B.Com students.
Calculate the Mean.

Class Interval	Frequency
0–50	26
50–100	14
100–150	40
150–200	20
200–250	50

8. The following table shows the marks scored by students in an exam. Find the Median.

Class Interval	Frequency
0–10	4
10–20	10
20–30	20
30–40	12
40–50	4

9. Below is the distribution of monthly expenditures of families. Find the Median.

Class Interval	Frequency
20000–30000	38
30000–40000	22
40000–50000	58
50000–60000	60
60000–70000	70

10. The following data show the number of customers visiting a shop. Compute the Mode.

Class Interval	Frequency
10–20	6
20–30	15
30–40	25
40–50	14
50–60	5

3.

11. Below is the distribution of heights of students in a class. Find the Mode.

Class Interval	Frequency
140–150	5
150–160	18
160–170	30
170–180	20
180–190	7

12. Compute Standard Deviation and its coefficient for the following data:

Class Interval	Frequency
15–25	7
25–35	12
35–45	20
45–55	10
55–65	6

13. The following distribution gives the scores of players. Calculate the Standard Deviation and Co-Variation.

Class Interval	Frequency
20–30	6
30–40	15
40–50	22
50–60	12
60–70	5

14. Calculate QD and its coefficient from the following data:

Class Interval	Frequency
0–10	5
10–20	9
20–30	14
30–40	12
40–50	5

15. Find QD and coefficient of QD for the following distribution:

Class Interval	Frequency
50–60	8
60–70	12

70–80	20
80–90	10
90–100	6

16. Compute Mean Deviation about Mean and its coefficient:

Class Interval	Frequency
10–20	4
20–30	10
30–40	16
40–50	8
50–60	2

17. Calculate Mean Deviation about Median and mode along with its coefficient:

Class Interval	Frequency
100–120	6
120–140	14
140–160	20
160–180	12
180–200	8

UNIT 3: CORRELATION AND REGRESSION

- From following information find the correlation coefficient between advertisement expenses and sales volume using Karl Pearson's coefficient of correlation method.

Promotions (in Lakhs)	110	113	140	160	165	150	151	114	130	135
Volume (Rs. In Lakhs)	500	500	550	600	655	657	650	700	700	800

2. Find the correlation coefficient between age and playing habits of the following students using Karl Pearson's coefficient of correlation method.

Number of students	250	200	150	120	100	80
Regular Players	200	150	90	48	30	12

3. Find Karl Pearson's coefficient of correlation between Investment and Return obtained.

Investments (in 000)	100	240	300	400	500	600	700	800	900	1000
Returns (in 00)	20	40	80	50	100	150	140	200	220	500

4. Find out spearman's coefficient of correlation between the two kinds of assessment ofgraduate students' performance in a college.

Internal Exam	51	68	73	46	50	65	47	38	60
External Exam	49	72	74	44	58	66	50	30	35

5. Ten competitors in a beauty contest are ranked by three judges in the following order:

1 st Judge	11	16	15	10	13	12	14	19	17	18
2 nd Judge	13	15	18	14	17	10	12	11	16	19
3 rd Judge	16	14	19	18	11	12	13	10	15	17

6. From the following data, compute the rank correlation.

X	82	68	75	61	68	73	85	68
Y	81	71	71	68	62	69	81	71

7. Find the two regression equation of X on Y and Y on X from the following data:

X	:	20	24	32	22	30	28	40	44
Y	:	30	36	46	28	40	34	50	56

8. Find the two regression equation of X on Y and Y on X from the following data:

X	:	120	124	132	122	130	128	140	144
Y	:	151	118	132	141	120	117	152	128

UNIT IV: TIME SERIES AND INDEX NUMBERS

1. Compute Laspeyre's, Paasche's and Fisher's Index numbers.

Items	1995		2000	
	Price	quantity	Price	Quantity
A	6	50	10	56
B	2	100	2	120

C	4	60	6	60
D	10	30	12	24
E	8	40	12	36

2. Compute Laspeyre's, Paasche's and Fisher's Index numbers for 2000 from the following data.

Items	Base Year		Current Year	
	Price	Expenditure	Price	Expenditure
A	50	100	60	180
B	40	120	40	200
C	100	100	120	12
D	20	80	25	100

3. Compute Laspeyre's, Paasche's and Fisher's Quantity Index numbers from the following data.

Items	Price		Quantity	
	Baseyear	Current year	Base year	Current year
A	400	85	100	120
B	320	690	20	60
C	720	1600	10	10
D	720	2100	10	20

4. Calculate three-yearly moving averages of number of students studying in a higher secondary school in a particular village from the following data.

Year	Number of Students
1995	330
1996	217
1997	357
1998	392
1999	402
2000	418

2001	410
2002	217
2003	250
2004	420

5. Calculate four yearly moving averages from the following data.

Year	Number of Students
2001	125
2002	215
2003	130
2004	300
2005	180
2006	250
2007	190
2008	165
2009	115

6. From the following data, Calculate 5 yearly moving average

Year	Sales (in Lakhs)
2004	300
2005	600
2006	500
2007	700
2008	100
2009	400
2010	200

7. The following table relates to the tourist arrivals during 1990 to 1996 in India:

Years :	1990	1991	1992	1993	1994	1995	1996
Tourists arrivals:	18	20	23	25	24	28	30

(in millions)

Calculate moving average 3 year and 4 year. Also, estimate the number of tourists in 1998 and 1999.

UNIT V : PROBABILITY

- Find the probability of getting a numbered card when a card is drawn from the pack of 52 cards.
- What is the probability of getting a sum of 7 when two dice are thrown?
- One card is drawn from a deck of 52 cards, well-shuffled. Calculate the probability that the card will
 - be an ace,
 - not be an ace.

4. A regular deck of cards has 52 cards. Assuming that you do not replace the card you had drawn before the next draw, what is the probability of drawing three aces in a row?
5. There are 15 green 27 red balls. Three balls are selected one by one without replacement. Find the probability that (i). Both are Green (ii) Both are red and (iii) first is green and second is red.
6. There are 6 blue marbles, 3 red marbles, and 5 yellow marbles in a bag. What is the probability of selecting a blue or red marble on the first draw?
7. There are 5 green 7 red balls. Two balls are selected one by one without replacement. Find the probability that first is green and second is red.
8. A pack contains 4 blue, 2 red and 3 black pens. If a pen is drawn at random from the pack, replaced and the process repeated 2 more times, What is the probability of drawing 2 blue pens and 1 black pen?
9. A pack contains 4 blue, 2 red and 3 black pens. If 2 pens are drawn at random from the pack, NOT replaced and then another pen is drawn. What is the probability of drawing 2 blue pens and 1 black pen?
10. A bag contains 5 white and 3 black balls. Two balls are drawn at random one after the other without replacement. WIP that both balls are black.
11. Find the probability of drawing a king, queen and Jack in three consecutive draws from a pack of cards, being not replaced.
12. A can solve a problem with 90% probability and B can solve with 70% probability. WIP of the problem to be solved by at least one of them?
13. In a class, 40% of the students study math and science. 60% of the students study math. What is the probability of a student studying science given he/she is already studying math?
14. In a class, 60% of the students study Physics and Chemistry. 30% of the students study Physics. What is the probability of a student studying Chemistry given he/she is already studying Physics?
15. If $P(A) = 7/13$, $P(B) = 9/13$ and $P(A \cap B) = 4/13$, evaluate $P(A|B)$.
16. A factory has two machines. M1 produces 30% of output and balance by M2. 5% of items produced by M1 are defective and 1% of items produced by M2 are defective. If a defective item is drawn, WIP that it is from M1 or M2?