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S.K.S.S ARTS COLLEGE, THIRUPPANANDAL - 612504

QUESTION BANK

Title of the Paper

BUSINESS TOOLS FOR DECISION MAKING

Course: II B.Com. & II B.Com. (CA)
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BUSINESS TOOLS FOR DECISION MAKING

(Theory & Problem)

UNIT – I

Introduction – Meaning, Characteristics, Stages and Uses of Statistics – Classification and Tabulation – Diagrams and graphs – Bar and pie diagrams – Graphs of one and two variables – Graphs of frequency distribution - Measure of central tendency – Arithmetic mean, Median, Mode, Geometric Mean and Harmonic mean.

UNIT – II

Measures of Dispersion – Range – Quartiles – Deciles – Quartile deviation – Mean deviation – Standard deviation – Co-efficient of variation - Measurement of Skewness (Karl person & Bowley methods only)

UNIT – III

Correlation – Simple correlation – Karl Pearson's coefficient of correlation – Spearman's rank correlation – Concurrent deviation method - Regression analysis – Simple regression – Regression equations 'X on Y' and 'Y on X'.

UNIT – IV

Analysis of Time series – Components – Methods – Semi average – Moving average - Method of least square – Interpolation – Meaning, Uses, Assumptions – Newton's method only.

UNIT – V

Index numbers – Price index numbers – unweighted and weighted – Tests in index numbers (Time and factor reversal tests only) - Cost of living index number – Aggregate expenditure method – Family budget method. (**Problem 80% and Theory 20%)**

UNIT – I

CHOOSE THE CORRECT ANSWER

1. Geographical Classification means classification of data according to
    a) Attributes
    b) Quality
    c) Location
    d) None of these

2. The number of observation corresponding to a particular class is known as.
    a) Series
    b) Frequency
    c) Group
    d) All the three

3. Array is arrangement of data in
    a) Ascending order only
    b) Ascending or descending order
    c) Descending order only
    d) None of these

4. Sum of reciprocals of observations
    a) Geometric mean
    b) Harmonic mean
    d) Mean
    d) Median

5. n^{th} root of product of n items
    a) Geometric mean
    b) Harmonic mean
    d) Mean
    d) Median

6. Three dimensional diagrams are also known as
    a) Bar diagrams
    b) Volume diagrams
    c) Rectangles
    d) None of these

7. Give means as 25, mode as 26 the median would be
    a) 25
    b) 25.33
    c) 26
    d) 25.67

8. The positional measure of central tendency is
    a) Geometric mean
    b) Harmonic mean
    d) Mean
    d) Median

9. The empirical relationship between mean, median and mode is given by
   (a) Mode = 3 median – 2 mean
   b) Mode = 3 mean – 2 median
   c) Mode = 2 median – 3 mean
   d) None of these

10. The sum of the deviations of individual observations of zero from
   a) Median
   b) Mode
   c) Actual mean
   d) Weighted mean

Answers : 1 (c) 2 (b) 3 (b) 4 (b) 5 (c) 6 (b) 7 (b) 8 (a) 9 (a) 10 (c)

SHORT QUESTIONS (2 MARKS)

11. Write a note on tabulation.
12. Define classification.
13. What is table?
14. Name any two types of classification.
15. What are the different types of diagrams?
16. What is bar diagrams?
17. Define mode.
18. What is Harmonic mean?
19. What is Geometric mean?
20. What is median?

PARAGRAPH QUESTIONS (5 MARKS)

21. Point out the stages of statistics.
22. State the uses of statistics.
23. What are the requisites of tabulation?
24. Explain briefing the four types of classification.
25. What are the characteristics of statistics?
26. What are the main objectives of tabulation?
27. Calculate Mean for the following :

X	1	2	3	4	5	6
F	2	4	6	8	10	12

28. Find the geometric mean :

46	55	39	28	40	67	53

29. Find the harmonic mean for the following numbers :

25	30	20	15	15	35	25	45	50

30. Calculate arithmetic mean from the following data :

Marks	0-10	10-30	30-60	60-100
No. of Students	5	12	25	8

ESSAY TYPE QUESTIONS (10 MARKS)

31. Describe the various parts of table.
32. What are the difference between classification and tabulation.
33. Explain the guiding principles for drawing diagrams.
34. Calculate mean for the following frequency distribution.

Marks	0-5	5-10	10-15	15-20	20-25	25-30
No. of students	20	25	35	28	24	19

35. Calculate Geometric Mean for the following data :

Marks	11	12	13	14	15
Frequency	3	7	8	5	2

36. Find the mode :

Size	0-10	10-20	20-30	30-40	40-50	50-60	60-70
Frequency	5	7	12	18	16	10	5

37. Calculate the GM and HM for the following :

Marks	20	21	22	23	23	25
No. of students	4	2	7	1	3	1

38. Calculate mode from the following data:

X	25	30	35	40	45	50	55
Y	7	11	17	15	14	10	11

39. Calculate median from the following data :

Marks	0-5	5-20	20-30	30-50
No. of students	4	9	20	12

40. Calculate harmonic mean for the following data :

Size of items	6	7	8	9	10	11
Frequency	4	6	9	5	2	8

UNIT – II

CHOOSE THE CORRECT ANSWER

1. Mean deviation is least when deviation are taken from
    a) Mean
    b) Mode
    c) Median
    d) None of these

2. The measure of variation that is least affected by extreme observations is
    a) Mean deviation
    b) Standard deviation
    c) Quartile deviation
    d) None of these

3. If the coefficient of variation of a distribution is 50, standard deviation is 20, mean shall be
    a) 4
    b) 40
    c) 25
    d) 35

4. When mean is 80 and variance is 64, the coefficient of variation is
    a) 10
    b) 80
    c) 125
    d) 100

5. The Square of the S.D of a distribution is called
    a) Quartile deviation
    b) Mean deviation
    c) Absolute deviation
    d) Variance

6. In a positively skewed distribution
    a) Mean > median > mode
    b) Mean = mode = median
    c) Median > mean > mode
    d) Mean < median < mode

7. In a negatively stewed distribution
    a) Mean < median > mode
    b) Mean < median < mode
    c) Mean < mode > median
    d) None of these

8. In a symmetrical (or) normal distribution
    a) Mean = median = mode
    b) Mean < median < mode
    c) Mean > median > mode
    d) Mean > mode > median

9. If a curve is less peaked than the normal curve, it is called,
    a) Platy kurtic
    b) meso kurtic
    c) Lepto kurtic
    d) Moments

10. If a curve is more peaked than the normal curve, it is called
    a) platy kurtic
    b) meso kurtic
    c) Lepto kurtic
    d) ments

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Answers : 1 (c) 2 (a) 3 (b) 4 (a) 5 (d) 6 (a) 7 (b) 8 (a) 9 (c) 10 (a)

SHORT QUESTIONS (2 MARKS)

11. What is mean deviation?
12. What is dispersion?
13. What is meant by range?
14. What is quartile deviation?
15. What is standard deviation?
16. What is coefficient of variation?
17. What is line of equal distribution ?
18. Distinguish between mean deviation and standard deviation
19. What are the uses of dispersion?
20. Give any three properties of a good measure of dispersion.

PARAGRAPH QUESTIONS (5 MARKS)

21. Calculate mean deviation from the following data :
    200, 210, 208, 160, 220, 250

22. Calculate range from the following data :

X	2	4	6	8	10
F	1	4	6	4	1

23. Calculate mean deviation from median from the following data :

Class Interval	34	46	68	810
Frequency	3	4	2	1

24. Calculate semi-inter-quartile range and coefficient of quartile deviation:

Age in years	20	30	40	50	60	70	80
No. of members	3	61	132	153	140	51	3

25. Calculate the standard deviation of marks of a student given below :

30	43	45	55	68	69	75

26. For the data given below calculate co-efficient of variation :

40	50	60	70	80	90	100

27. Calculate the standard deviation from the following data :

Marks (X)	10	20	30	40	50	60
No. of students (F)	8	12	20	10	7	3

28. Calculate quartile deviation and its coefficient from the following data :

Height (in Cms)	28	32	18	16	42	12	39

29. Find the range and quartile deviations from the following :

25	24	23	32	40	27	30	25	20	10	15	45

30. Calculate co-efficient of skewness for the numbers given below:

77	73	75	70	72	76	75	72	74	76

ESSAY TYPE QUESTIONS (10 MARKS)

31. Calculate quartile deviation and coefficient of quartile deviation from the following :

Class Interval	60-64	64-68	68-72	72-76	76-80	80-84	84-88
Frequency	12	18	16	14	12	8	8

32. Calculate mean and standard deviation for the following data :

X	45	50	55	60	65	70	75	80
F	3	5	8	7	9	7	4	7

33. Find the coefficient of variation for the following data :

0-10	10-20	20-30	30-40	40-50
7	12	24	10	7

34. Calculate standard deviation for the following data :

Class Interval	5-10	10-15	15-20	20-25	25-30	30-35	35-40	40-45
Frequency	6	5	15	10	5	4	3	2

35. Compute Q.D. and its coefficient :

X	30-32	32-34	34-36	36-38	38-40	40-42	42-44
F	12	18	16	14	12	8	6

36. Calculate Q.D. for the data given below:

Class Interval	35-36	36-37	37-38	38-39	39-40	40-41	41-42
Frequency	14	20	42	54	45	21	8

37. Compute standard deviation from the following data :

X	600	620	640	620	680	670	680	640	700	650

38. Following is the distribution of marks of 80 students in a class. Find coefficient of variation.

Marks below	50	40	30	20	10
No. of Students	80	65	46	25	12

39. Calculate continued standard deviation :

$\overline{x_1}$ = 40 σ_1 = 4

$\overline{x_2}$ = 50 σ_2 = 6

40. From the data given below, calculate quartile deviation.

X	351-500	501-650	651-800	801-950	951-1100
F	48	189	88	47	28

UNIT – III

CHOOSE THE BEST ANSWER

1. Coefficient of correlation
    a) Cannot be more than 1
    b) Always be negative
    c) Is always positive
    d) Can be either positive or negative

2. Persons' coefficient of correlation always lies between
    a) –Z and + Z
    b) -1 and + 1
    c) -1 and 0
    d) 0 and + 1

3. Coefficient of correlation is independent of
    a) change of scale only
    b) Both change of scale and origin
    c) Change of origin only
    d) None of these

4. A relationship is non-linear when
    a) It is a straight line
    b) Cannot be plotted on the graph
    c) It forms a curve
    d) None of these

5. While drawing a scatter diagram, if all points appear to be? a straight going downward from upper left to lower right then it is inferred that there is.
    a) Perfect positive correlation
    b) Perfect negative correlation
    c) No correlation
    d) None of these

6. The line of best fit is obtained by
    a) Correlation analysis
    b) Standard error of estimate
    c) Method of least squares
    d) Regression analysis

7. For knowing the most probable value of Y for given X, we use
    a) Regression of X an Y
    b) Repression of Y an X
    c) Correlation coefficient
    d) Regression Coefficient

8. The regression line cut each other at the point of
    a) Median of X and Y
    b) Average of X and Y
    c) Average of Y only
    d) Average of X only

9. If bxy = - 1/6 and byx = - 1.5, then
    a) 0.5
    b) 0.25
    c) -0.5
    d) -0.25

10. In case of perfect correlation between X and Y there will be
    a) only one regression line
    b) Two regression lines
    c) No regression line
    d) more than two regression lines

Answers : 1(d) 2(b) 3(b) 4(c) 5(b) 6(c) 7 (b) 8 (b) 9 (c) 10 (a)

SHORT QUESTIONS (2 MARKS)

11. Define correlation
12. What is correlation analysis?
13. What is negative correlation?
14. What is rank correlation?
15. Mention the different methods of studying correlation
16. What is positive correlation?
17. What is regression?
18. What is multiple correlation?
19. What is linear correlation?
20. What are regression coefficients?

PARAGRAPH QUESTIONS (5 MARKS)

21. State the importance of correlation
22. Describe the various types of correlation
23. What are the prosperities of regression equation?
24. Calculate the coefficient of correlation between X and Y for the following

X	1	3	4	5	7	8	10
Y	2	6	8	10	14	16	20

25. Explain the merits and demerits of karl pearson's correlation.
27. Calculate the coefficient of correlation by concurrent deviation method from the following data:

A	90	95	55	60	70	85	90	95
B	80	70	50	60	75	80	90	100

28. Calculate the two regression equations from the following data :

X	10	12	13	12	16	15
Y	40	38	43	45	37	43

Also estimate Y when X = 20

29. Calculate coefficient of correlation from the following :

X	12	9	8	10	11	13	7
Y	14	8	6	9	11	12	13

30. From the following ranks assigned to A and B, find rank correlation.

X	1	2	3	4	5	6	7	8	9	10
Y	10	8	7	9	6	2	4	3	5	1

ESSAY TYPE QUESTIONS (10 MARKS)

31. What is correlation? And explain the various method of determining correlation.
32. From the following data calculate rank correlation coefficient.

X	48	33	40	9	16	16	65	24	16	57
Y	13	13	24	6	15	4	20	9	6	19

33. Calculate coefficient of correlation between the values of X and Y given below:

X	65	66	67	67	68	69	70	72
Y	67	68	65	68	72	72	69	71

34. Calculate the Karl Pearson's coefficient of correlation for the following data:

X	34	27	31	38	38	36	39	39	40	43
Y	9	8	11	15	15	16	15	10	13	12

35. Find the two regression equations:

X	40	38	35	42	30
Y	30	35	40	36	29

36. Find two regression equation from the following :

Particulars	**X**	**Y**
Arithmetic Mean	36	85
Standard Deviation	11	8

Correlation Co-efficient between X and Y is 0.66

37. From the following data calculate the value of Y when X = 12

Particulars	**X**	**Y**
Arithmetic Mean	7.6	14.18
Standard Deviation	3.6	2.5

Correlation Co-efficient between X and Y is 0.99

38. Estimate the values of X corresponding to Y = 200 from the following data :

X	200	248	297	338	463	393
Y	137	147	184	196	276	260

39. Find he two regression lines :

X	3	5	6	8	9	11
Y	2	3	4	6	5	10

40. Compute the three corelation coefficients from the data given below :

X	10	12	13	12	16	15
Y	40	38	43	45	37	43
Z	22	40	35	28	40	60

UNIT – IV

CHOOSE THE CORRECT ANSWER

1. Vital factors causing seasonal variation in time series are
    a) Growth in population
    b) Technological improvements
    c) Weather and social customs
    d) None of these

2. A time series consists of data arranged
    a) Chronologically
    b) Geographically
    c) Serially
    d) Intermittently

3. Secular trend refers to
    a) Short term movement
    b) Medium term
    c) Long term movement
    d) Intermittently

4. Variation in business cycle is an example
    a) Cyclical variation
    b) Seasonal variation
    c) Secular trend
    d) Irregular variation

5. A given set of data for interpolation and extrapolation will have
    a) only independent variable
    b) Only dependent variable
    c) Both ‘a’ and ‘b’
    d) None of these

6. Formula used for interpolation and extrapolation is
    a) Same
    b) Different
    c) Slightly modified
    d) None of these

7. Binomial Expansion method of interpolation can be used when X variable.
    a) Advances by equal interval
    b) Advances by unequal intervals
    c) Remains Constant
    d) Advances by equal proportion with that of Y

8. In the case of parabolic curve method of interpolation, if the number of known pairs is 3,
    a) Third degree parabola
    b) Second degree parabola
    c) Fourth degree parabola
    d) Any of the above

9. Lagrange method can be applied when the series
    a) Advances by equal intervals
    b) Has value to be interpolated in the beginning or in the end
    c) Advances by inequal intervals
    d) All the above

10. Which of the following are common reasons for studying both secular trend and seasonal variation of time series
    a) To describe past pattern only
    b) To allow the elimination of the component from the series only
    c) To project past pattern into the future only
    d) All the above

Answers : 1 (c) 2 (a) 3 (c) 4 (a) 5 (c) 6 (a) 7 (c) 8 (d) 9 (a) 10 (d)

SHORT QUESTIONS (2 MARKS)

11. What do you mean by trend?
12. Give example for secular trend
13. How would you classify time series
14. What do you mean by time series
15. What is meant by moving average?
16. What are seasonal variation?
17. What are the various methods used for finding secular trend?
18. What is meant by method of last squares?
19. What is interpolation?
20. What is extrapolation?

PARAGRAPH QUESTIONS (5 MARKS)

21. List out the benefits of time series analysis
22. Explain the various components at time series analysis
23. What are the assumptions of interpolation?
24. Discuss the method of least square for the measurement of trend.
25. Fit a straight time trend by the method of least square to the following data.

Year	2010	2011	2012	2013	2014	2015
Production (in million tons)	24	25	29	26	22	24

26. Fit a straight line trend by the method of least square to the following data :

Year	2009	2010	2011	2012	2013	2014	2015
Sales (in tons)	110	115	130	140	145	160	180

27. Explain briefly the semi-average method of determining trend.
28. Find the 3 yearly moving average from the following time series data :

Year	1	2	3	4	5	6	7	8
Production (in tons)	30.1	45.4	39.3	41.4	42.2	46.4	46.4	49.2

29. Find the 4 yearly moving average from the following time series data :

Year	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Sales (in Rs. Lakhs)	21	22	23	25	24	22	25	26	27	26

30. Draw a trend line by the method of semi-averages:

Year	2009	2010	2011	2012	2013	2014	2015
Sales (Units)	100	110	120	115	130	135	140

ESSAY TYPE QUESTIONS (10 MARKS)

31. Explain the components of time series
32. Calculate tend values from the following data using the method of least squares:

Year	2008	2009	2010	2011	2012	2013
Sales (Rs.in lakhs)	7	9	12	15	18	23

33. Calculate the trend values by the method of least squares from the data given below the estimate production for 2015.

Year	2008	2009	2010	2011	2012
Production (in tons)	70	74	80	86	90

34. Compute the seasonal indices by link relatives method for the following data :

Quarter	Prices			
	2011	2012	2013	2014
I	75	86	90	100
II	60	65	72	78
III	54	63	66	72
IV	59	80	85	93

35. Find the 4 yearly moving average from the following time series data :

Year	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Sales (in Rs. Lakhs)	464	515	518	467	502	540	557	571	586	612

36. Estimate the production for the year 2000 and 2002 with the help of the following table :

Year	1997	1998	1999	2000	2001	2002	2003
Production (‘000)	200	220	260	?	350	?	430

37. Calculation the 5 yearly moving averages from the following data :

Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
No. of men	705	685	703	687	705	689	715	685	725	730

38. Fit a straight line trend by the method of least squares and tabulate the trend values:

Year	2011	2012	2013	2014	2015
Production (in tons)	10	20	30	50	40

39. Calculate the trend values by the method of least squares from the data given below the estimate the sales for 2018:

Year	2011	2012	2013	2014	2015
Production (in tons)	12	18	20	23	27

40. Using any method of interpolation, estimate the business done in April from the following data :

Month	Jan	Feb	Mar	May	June
Business done(‘000)	150	235	365	525	780

UNIT – V

CHOOSE THE CORRECT ANSWER

1. Index numbers are expressed in :
    a) Rations
    b) Squares
    c) Percentages
    d) Combinations

2. Index numbers can be used for
    a) Forecasting
    b) Fired Prices
    c) Different Prices
    d) Constant Prices

3. The ratio of a new price to the base year price is called the
    a) Price decrease
    b) Price absolute
    c) Price relative
    d) Price increase

4. A weighted aggregate price index where the weight for each item is its current- period quantity is called the
    a) Aggregate index
    b) Consumer price index
    c) Laspeyres index
    d) Paasche index

5. An index that is designed to measure changes in over time is known as the
    a) Quantity index
    b) Time index
    c) None of the above
    d) Paasche index

6. An index number is used
    a) To measure changes in demand
    b) To measure changes in a variable over time
    c) To measure changes in quantity
    d) To measure changes in price

7. Circular test is an extension of
    a) Time reversal test
    b) Factor reversal test
    c) Unit reversal test
    d) None of these

8. The two tests suggested by fisher which a good index should satisfy are
    a) Unit test and circular test
    b) Time reversal and factor reversal test
    c) Circular test
    d) Both ‘a’ and ‘b’

9. The base year should be a
   a) Normal period
   b) Prosperous period
   c) Average period
   d) Abnormal period

10. Time reversal test is satisfied when
   a) $P_{01} \times P_{10} = 0$
   b) $P_{01} \times P_{10} > 1$
   c) $P_{01} \times P_{10} < 1$
   d) $P_{01} \times P_{10} = 1$

Answers : 1 (c) 2 (a) 3 (c) 4 (d) 5 (a) 6 (b) 7 (a) 8 (b) 9 (a) 10 (d)

SHORT QUESTIONS (2 MARKS)

11. What is cost of living index?
12. List out any three uses of Index numbers
13. Define index number
14. Write a short note on index numbers
15. Name the types of index numbers
16. What is price index?
17. What is meant by quality index?
18. What is time reversal test?
19. What is chain index number?
20. Give any three differences between laspeyres method and paasche method of calculating index numbers.

PARAGRAPH QUESTIONS (5 MARKS)

21. Explain the characteristics of index number
22. What are the classification of index numbers
23. Construct chain index numbers from the link relatives given below :

Year	2010	2011	2012	2013	2014
Link Relative	100	105	95	115	102

24. Calculate price index number by
   (i) Unweighted Arithmetic mean (ii) Unweighted Geometric mean
   (iii) Unweighted Aggregative methods

Item	A	B	C	D	E
Price in Rs. (1998)	20	35	50	10	5
Price in Rs. (2001)	22	42	70	10	4

25. From the following data, calculate laspeyres index number :

Commodity	**2011**		**2012**	
	Price	**Quantity**	**Price**	**Quantity**
P	40	6	20	8
Q	60	5	50	10
R	50	15	40	15
S	20	25	20	20

26. From the following data, calculate Simple index number using X and Gemetric Mean :

Commodity	2013		2014	
	Price	Quantity	Price	Quantity
A	5	15	7	12
B	4	5	6	4
C	7	4	9	3
D	52	2	55	2

27. Calculate cost of living index using aggregate and average of relative method :

Item	Price		Quantity	
	2013	2014	2013	2014
A	4	10	50	40
B	3	9	10	2
C	2	4	5	2

28. Calculate Laspeyres index number from the following data :

Commodities	A	B	C	D	E
Base year price	32	41	53	64	17
Base year quantity	7	5	6	3	8
Current year price	43	57	63	82	19

29. Construct Fisher's Ideal index number from the following data and justify that it satisfies the time reversal and factor reversal test :

Commodity	2012		2013	
	Price	Quantity	Price	Quantity
A	10	6	15	5
B	12	10	15	10
C	18	5	27	3
D	11	5	12	4

30. Explain the uses of Index Numbers

ESSAY TYPE QUESTIONS (10 MARKS)

31. From the following data, calculate Fisher's Number and verify whether it satisfy unit test and circular test.

Product	2012		2013	
	Price	Expenditure	Price	Expenditure
A	12	144	10	100
B	14	196	12	144
C	16	256	14	196
D	18	324	16	256
E	20	400	18	324

32. Compute Laspeyre's Paasche's and Fisher's Price Index from the following data. Also verify whether they satisfy unit and circular tests.

Commodities	2014		2015	
	Price	Quantity	Price	Quantity
A	15	15	22	12
B	20	5	27	4
C	4	10	7	5

33. From the following data, calculate price index number by (i) Laspeyre's method (ii) Paasche's method (iii) Marshall – Endgeworth method (iv) Fisher's method

Commodity	2011		2012	
	Price	Quantity	Price	Quantity
A	20	8	40	6
B	50	10	60	5
C	40	15	50	15
D	20	20	20	25

34. Compute Laspeyre's Paasche's and Fisher's Price Index for 2015 using the following data :

Particulars	Product		
	A	B	C
Quantity (Kgs)			
2014	15	5	10
2015	12	4	5
Price per Kg			
2014	15	20	4
2015	20	27	7

35. From the following data construct Fisher's ideal index number and show that it satisfies Factor Reversal Test :

Product	Base Year		Current Year	
	Price	Qty.	Price	Qty.
A	52	50	30	50
B	30	35	15	40
C	16	35	18	50

36. From the following data, calculate (i) Laspeyres' index (ii) Paasche's index (iii) Fisher's index (iv) Marshalls index (v) Bowley's index (vi) Kelly's index :

Product	Base year		Current year	
	Price	Qty	Price	Qty
A	15	125	13	150
B	12	100	15	80
C	8	150	10	125
D	10	200	8	250
E	6	80	9	60

37. The following data relate to the prices and qauantities of six commodities. Construct the following indices : (i) Laspeyre's Index (ii) Paasche's index (iii) Fisher's Index (iv)Bowley's index (v) Marshalls index (vi) Kelly's inbox.

Commodity	p_0	q_0	p_1	q_1
1	5	14	3	18
2	8	18	6	25
3	3	25	1	40
4	15	36	12	48
5	9	14	7	18
6	7	13	5	19

38.Compute Index Number using Fisher's ideal formula an show that it satisfies Time reversal test and Factor reversal test:

Commodity	Base year		Current year	
	Qty	Price	Qty	Price
A	12	10	15	12
B	15	7	20	5
C	24	5	20	9
D	5	16	5	14

39. Calculate index number using (i) Laspeyre's method (ii) Paache's method.

Product	p_0	q_0	p_1	q_1
A	12	100	20	120
B	4	200	4	240
C	8	120	12	150
D	20	60	24	20

40. Calculate Cost of Living index number using Family Budget method for the following data :

Product	Qty (units	Price in 2012	Price in 2013
A	20	200	320
B	14	400	420
C	15	100	120
D	18	40	60
E	10	20	28