

Vidya Vikas Mandal's
Shree Damodar College of Commerce and Economics
FYBBA (FS), Semester II, Semester End Examination, April 2017
Data Analysis and Quantitative Techniques

Duration: 2hrs.

Max.Marks: 60

INSTRUCTIONS: - 1) All questions are **compulsory**.
 2) Figures to the right indicate full marks.

Q.1) Attempt **ANY TWO** of the following :- **(6 x 2 = 12 marks)**

a) The sales of a company are observed over the years as follows:-

Years	2004	2005	2006	2007	2008	2009
Sales (million)	56	55	51	47	42	34

Using the Method of Semi-averages:

- 1) Calculate and discuss the semi-averages using a trend line.
- 2) Estimate the sales for the year 2010 and its further scope based on it.

b) Calculate Spearman's Rank correlation coefficient and state the type of correlation of the data:-

A	8	6	7	2	3	5	10	1	9	4
B	10	8	7	2	5	4	6	1	9	3

c) Using Rank method, find and discuss the correlation between the marks of two judges given to a group of competitors in a beauty contest.

Judge	Bonnie	Iris	Diana	Davina	Catelyn	Sara	Alex	Carla	Debra	Grace
Ist	100	85	89	68	95	98	90	70	79	75
IInd	67	84	55	57	98	89	85	50	76	60

Q.2) Answer **ANY THREE** of the following :- **(4 x 3 = 12 marks)**

a) Based on the given data, discuss the trend pattern using Free-hand Curve Method.

Year	1993	1994	1995	1996	1997
Sales	155	175	185	205	250

b) Using the method of Semi-averages, find the semi-average and discuss the income pattern of the workers in an industry, from the given data:-

Year	1995	1996	1997	1998	1999	2000	2001
Income(per day)	24	22	20	18	16	14	12

- c) Calculate the five-yearly moving average for the following data:-

Year	2003	2004	2005	2006	2007	2008	2009	2010	2011
value	20	24	28	32	36	39	41	43	45

- d) What is Time Series? Explain the various components of time series.

Q.3) Answer ANY THREE of the following:-

(4 x 3 = 12 marks)

- a) What is an index number? Explain the limitations and uses of an index number.
- b) From the following data, calculate price index numbers for 2010 and 2012 as base years by Laspeyre's method.

Commodity	Year 2010		Year 2012	
	Price	Quantity	Price	Quantity
I	20	80	30	60
II	15	10	20	50
III	30	15	50	15

- c) Construct Paasche's index numbers from the following data :

Commodity	Current year		Base year	
	Price	Quantity	Price	Quantity
A	10	40	9	80
B	12	10	12	70
C	70	20	60	10

- d) From the following data, calculate index numbers by Simple average of price relative method.

Commodity	A	B	C	D
Price in 2005 (Rs.)	162	250	256	132
Price in 2006	170	190	164	145

Q.4) Solve ANY TWO the following :-

(6 x 2 = 12 marks)

- a) The probability for a student to qualify in an exam is 0.1. If a group of 4 students have appeared in this exam, then find the probability that at most one student will qualify in it.
- b) A jar contains black and white marbles. Two marbles are chosen without replacement. The probability of choosing a white marble after black is 0.34 and that of selecting a black marble at the first draw is 0.47. what is the probability of selecting a white marble after selecting a black marble?
- c) A coin is tossed 5 times. If there are 200 such sets, then find the expected frequency of getting 3 heads and 2 tails.

Q.5) Attempt ANY ONE of the following:-

(12 x 1 = 12 marks)

a) Using the given data:

X	16	2	10	4	8
Y	9	11	5	7	8

- i) Compute the regression coefficients and the equations of lines.
- ii) Calculate the correlation coefficient using the regression coefficients and discuss the type of correlation.

b) A group of 5 students answered a test with 2 subjects X and Y .Their marks are as follows:-

X	100	140	135	150	90
Y	90	80	50	60	100

- From the above data find :-
- i) The Spearman's rank correlation coefficient.
 - ii) Karl Pearson's Coefficient of correlation.
 - iii) Discuss the type of correlation between marks of X and Y.
