VidyaVikasMandal's
Shree Damodar College Of Commerce & Economics Margao, Goa
F.Y.BBA (FS) , Semester II, OCT 2016
Data Analysis and Quantitative technique
End Semester Examination

<u>Duration: 2 Hours</u>   **Max. Marks: 60**

Instructions: Figures to the right indicate maximum marks.
Non Scientific calculator is allowed.
In QI, answer any 3.
In QII and QIII, answer any 4.

QI.   **Answer ANY 3:**   **(3 X 4 M = 12 M)**

1.   Plot the trend line using 5 yearly moving averages method and original line for the production of wheat from the following data:

Year	2009	2010	2011	2012	2013	2014	2015
Production of wheat (in tons)	53	51	56	55	58	63	61

2.   From the following data, calculate
          a.   Paasche's Price index number.
          b.   Laspeyer's Quantity index number.

Commodity	Base year		Current year	
	Price	Quantity	Price	Quantity
A	60	10	50	10
B	20	12	60	9
C	40	6	80	7
D	100	8	120	8

3.   The probability that a certain new film will get an award for its story is 0.23, the probability it will get an award for its music is 0.15 while the probability that it will get an award for both is 0.07. What is probability that film will get an award for?
          a.   At least one of the two
          b.   Exactly one of the two.

4.   Three cards are drawn from a well – shuffled pack of 52 cards. Find the probability that
          a.   All ace
          b.   Exactly one ace
          c.   Both are of same suit

5.   For, n = 5, $\sum x = 40, \sum y = 120 \sum x^2 = 140, \sum y^2 = 365, \sum xy = 1006$ .Find Karl Pearson's correlation coefficient.

QII.   **Answer ANY 4:**   **(4 X 6M = 24M)**
1.   Calculate 4 yearly moving averages and plot trend line for the following data:

Year	2009	2010	2011	2012	2013	2014	2015
No. of workers	430	470	450	460	480	470	500

2. Calculate the Rank correlation coefficient between Marks of Cyber Security and Statistics:

Marks in Cyber Security	60	40	34	29	39	40	49	50
Marks in Statistics	40	28	29	32	65	60	60	55

3. An automobile insurance company has found from past records that the chance of paying off on a policy during a year is just 0.1%. 500 new policies are issued in last month. What is chance that during the next year there will be? ($e^{-0.5} = 0.6065, e^{-5} = 0.0067$)
   a. No claim
   b. At least two claim from amongst one of these 500 clients

4. From the following data, calculate Marshall and Edgeworth's
   a. Price index number.
   b. Quantity index number

Commodity	2000		2005	
	Price	Quantity	Price	Quantity
A	6	60	10	50
B	2	20	9	60
C	4	40	7	80
D	10	100	8	100

5. Fit a linear trend line using least square method for the following data. Also, estimate production of wheat for year 2016.

Year	2009	2010	2011	2012	2013	2014
Production of wheat (in tons)	53	51	56	55	58	63

QIII. **Answer ANY 4:**
                                                                    (4 X 6M = 24M)

1. A touring cricket team of 17 members includes a manager, a captain, a vice captain, 2 wicket keepers, 6 batsmen, 4 bowlers and 2 all-rounders'. A selection committee of 5 including the manager, the captain and the vice-captain is to be formed. Find the probability that it includes
   a. At least one batsman
   b. No wicket keeper

2. . For bivariate data, the regression lines are $2x + y = 30$ and $3x + 5y = 42$.
   a. Find angle between two regression lines.
   b. Find mean of X and Y.
   c. Find the most probable value of y when x = 9.

3. An export agency exports tennis balls which are supplied by three manufacturers: A, B and C. The balls manufactured by them contain 3%, 4% and 1% defective balls respectively. The demand for the ball is large and the manufacturer can supply the balls within their limitation. The agency's total export lot contain 50% balls manufactured by A, 30% by B and remaining by C. One ball is selected at random for inspection. Find
   a. P(manufactured by A and Defective)
   b. P(manufactured by B and Defective)
   c. P(manufactured by C and Defective)

4. Verify Dorbisch and Bowley's factor reversal test for the following data:

Commodity	2000		2005	
	Price	Quantity	Price	Quantity
Rice	16	60	10	50
Wheat	12	20	19	60
Jowar	14	40	17	40
Milk	10	50	18	30

5. Determine most likely salary of wife when husband's salary is Rs. 1500 (using regression line)

Wife's salary (in Rs.)	70	80	120	140	170	190
Husband's salary (in Rs.)	80	100	200	210	130	240

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