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III Semester B.Com. Examination, November/December 2015
(New Syllabus) (2013-14 and Onwards) (Repeaters)
COMMERCE
3.6 : Quantitative Analysis for Business Decisions – II

Time : 3 Hours Max. Marks : 100

Instruction : *Answers should be written fully in* ***English*** *or in* ***Kannada***.

SECTION – A

Answer **any ten** sub-questions. **Each** sub question carries **two** marks. **(10×2=20)**

1. a) Write the meaning of correlation.

b) What is regression ?

c) If $b_{xy} = 0.8$ and $b_{yx} = 0.6$ find 'r'.

d) What is probable error ?

e) State any 2 components of time series.

f) State the essential requirements of time series.

g) Mention the basic assumptions of interpolation.

h) Distinguish between interpolation and extrapolation.

i) What is cluster sampling ?

j) What is statistic ?

k) What is sample space ?

l) Out of 230 babies born in a community in a year, 126 were male. Find the probability that a new born baby is male and female.

SECTION – B

Answer **any four** of the following. **Each** question carries **eight** marks. **(4×8=32)**

2. The following are the marks of 6 students in statistics and mathematics. Find the co-efficient of correlation.

Marks in statistics	25	43	27	35	54	61
Marks in Mathematics	35	47	20	37	63	54

3. Fit a straight line trend by the least square method to the following data.

Year	2008	2009	2010	2011	2012
Earning (in lakhs)	38	40	65	72	69

4. Interpolate the population of 1991 from the following data.

Year	1971	1981	1991	2001	2011
Population (in lakhs)	100	120	?	160	180

5. Two fair dices are rolled. Find the probability that
   a) Both the dice show number 6
   b) The sum of the numbers obtained is 7 or 10
   c) The sum is divisible by 3.

6. The manufacturer of T.V. wants to estimate the proportion of people in a given income bracket who are interested in the model. The company wants to know the population proportion P to be within 0.1 with 99% confidence level ($z = 2.58$). Current company records indicate that the P may be around 0.25. What is the minimum required sample size for this survey ?

SECTION – C

Answer **any three** of the following. **Each** question carries **16** marks. **(3×16=48)**

7. From the following data :
   a) Calculate two regression equations
   b) Estimate yield for 10 inches rainfall
   c) Determine the value of correlation co-efficient through regression co-efficients.

Rainfall (in inches)	1	2	3	4	5	6	7	8	9
Yield (in Tonnes)	1	3	2	5	5	7	6	8	8

8. Calculate the trend values by the method of least squares from the data given below and estimate the sales for 2006. Plot the values on a graph.

Year	2001	2002	2003	2004	2005
Sales (in lakhs)	70	74	80	86	90

9. Below are given the wages earned by worker per week in a certain factory.

Weekly income up to Rs.	10	15	20	25	30
No. of workers	40	160	220	340	440

Calculate number of workers earning between 20 and 23 by Newton's method.

10. Following are the monthly figures of advertising expenditure and sales of a firm. It is generally found that the advertising expenditure has its impact on sales generally after two months. Allowing this time lag, calculate Karl Pearson's co-efficient of correlation.

Months	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Advertising Expenses (Rs.)	5	6	7	9	12	15	14	16	17	19	20	25
Sales (Rs.)	120	150	160	200	220	250	240	260	280	290	310	390