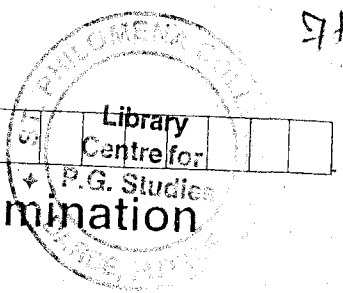


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First Semester M.Com. Degree Examination December - 2005

Subject : COMMERCE

PAPER 1.2 : STATISTICS FOR BUSINESS AND MANAGEMENT-I

Time: 3 Hours

Max. Marks : 80

SECTION - A

- Note: 1. Answer any FOUR questions.
2. Each question carries 10 marks

1. Define indices and prove the laws of indices.
2. (a) Expand and simplify $(\sqrt{2}+1)^6 + (\sqrt{2}-1)^6$ using binomial theorem
(b) Find the fourth root of $17 - 12\sqrt{2}$
3. (a) The sum of three terms in AP is 15 and their product is - 120. Find them.
(b) The sum of three terms in GP is 62 and their product is 1000. Find the numbers.
4. What is time series? Explain its components.
5. Distinguish between
 - (i) Positive and negative correlation and
 - (ii) Simple and Multiple correlation
6. Compare and contrast the role of correlation and regression in studying the interdependence of two variates.
7. What do you mean by SQC? Discuss briefly its need and utility in industry.

SECTION - B

- Note: 1. Answer any TWO questions.
2. Each question carries 20 marks.

8. (a) What do you understand by seasonal indices?
(b) Analyse the following data for seasonal variation.

Quarter	Sales (in lakh rupees)			
	2001	2002	2003	2004
I	38	54	58	66
II	44	60	78	88
III	48	52	66	84
IV	52	78	98	106

9. Following figures give the rainfall in inches for the year and the production of paddy and wheat crops. Calculate the Karl Pearson's coefficient of correlation, between rainfall and total production.

Rainfall	:	20	22	24	26	28	30	32
Paddy production	:	1500 kgs	1800 kgs	2000 kgs	3200 kgs	4000 kgs	3900 kgs	4000 kgs
Wheat production	:	1500 kgs	1700 kgs	2000 kgs	1800 kgs	2000 kgs	2100 kgs	1500 kgs

10. A machine is set to deliver packets of a given weight. 10 samples of size 5 each were recorded. Below are given relevant data:

Sample No.	1	2	3	4	5	6	7	8	9	10
Mean(\bar{X})	15	17	15	18	17	14	18	15	17	16
Range(R)	7	7	4	9	8	7	12	4	11	5

Calculate the values for the central line and the control limits for mean chart and then comment on the state of control.

(Conversion factors for $n=5$, are $A_2=0.58$, $D_3=0$, $D_4=2.11$)

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