SVKM'S NMIMS UNIVERSITY
SCHOOL OF DISTANCE LEARNING

Programme:
PGDMM(III)/PGDFM(III)/PGDHRM(III)/PGDITM(III)/PGDSCM(III)/PGDBFM(III)/ADITM(II)/ADBFM(III)/ADSCM(II)
Subject: Quantitative Analysis for Managerial Applications
Date:
03-06-2009 (11.00am- 2.00pm)

Marks: 100
Time : 3 hrs

Instructions: Candidates should read carefully the instructions printed on the question paper and on the cover of the Answer Book, which is provided for their use.

NB:
- ✓ Answer to **each new question** to be started on a fresh page.
- ✓ Figure in brackets **indicate full marks.**

Q.1 Attempt **any two**

a) If $f(x) = 3x + 4$ find f(1), f(2/3),and f(0) 5

b) Solve by Cramer's Rule: $2x - y = 5$ and $3x + 2y = -3$ 5

c) Plot a histogram for the following data: 5

Wage (in Rs.)	10-20	20-30	30-40	40-50	50-60
No. of workers	5	7	3	7	5

d) Two dice are thrown simultaneously. Find the probability that the sum of the numbers on the uppermost faces is 10. 5

Q.2 Write short notes on **any three** 5

a) Arithmetic Mean. 5

b) Scatter Diagram. 5

c) Forecasting for medium and short term decisions. 5

d) Primary and Secondary data. 5

e) Normal Distribution.

Q.3 Attempt **any three**

a) The total cost function C for a company is $C(x) = 20 + 4x$ and total revenue function R for the same company is $R(x) = 30x - x^2$, where x is the output. Find the output at which profit is maximum. Also find the maximum profit. Find the sum: 7+77+777+..... upto n terms. 15

b) State the properties of a good measure of central tendency. Find mean, standard deviation and coefficient of variation for the following data: 15

Daily Wages (in Rs.)	0-10	10-20	20-30	30-40	40-50
No. of workers	5	8	15	16	6

c) Explain the significance of Karl Pearson's coefficient of correlation. Find the Karl Pearson's Coefficient of correlation for the following data: 15

Price(in Rs.)	8	10	15	17	20	22	24	25
Supply (in Kg.)	25	30	32	35	37	40	42	45

d) Explain Binomial and Poisson Distributions. The mean weight of 500 male students in a college is 151 lb and standard deviation is 15 lb. Assuming that the weights are normally distributed , find how many students weigh (a) between 120 lb & 155 lb (b) more than 185 lb. (Given: area between z=0 & z= 0.27 = 0.1064 and area between z = 0 and z= -2.1 = 0.4821. area between z= 0 & z= 2.27 = 0.4884) 15

e) What is sampling? What are the different types of sampling? A psychologist after a survey of children with age below 5 years old regarding the variability in their attention span finds that σ =8 minutes. To convince herself that the attention span of six years old should be different from that of five years old, she conducts another survey of 20 children and finds that the sample variance as $s^2 = 28$ minutes. What would be null and alternative hypothesis? At a significance level of $\alpha = 5\%$, what is the probable conclusion she should reach? (Given : at 19 degrees of freedom and a significance level of 5%, the values of χ^2 where 0.025 of the area will lie at both tails is 8.907 and 32.852 respectively.) 15

Q.4

a) Compare mean, median and mode. Find median and mode for the following data: 15

Life(in hrs)	0-100	100-200	200-300	300-400	400-500	500-600
No. of lamps	8	25	45	12	7	3

b) Compare correlation and regression. Fit a straight line and hence estimate the production for the year 1992. 15

Year	1982	1983	1984	1985	1986	1987
Production (in'00tones)	105	110	123	130	150	171

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