MBA (Sem. - 1st)
QUANTITATIVE TECHNIQUES
SUBJECT CODE : MB - 104
Paper ID : [C0104]

[Note : Please fill subject code and paper ID on OMR]

Time : 03 Hours   **Maximum Marks : 60**

Instruction to Candidates:

1)   Section - A is **Compulsory**.

2)   Attempt any **Four** questions from Section - B.

Section - A

Q1)   *(10 x 2 = 20)*

a)   Discuss role of statistics in business decisions.

b)   Find the value of x from $\log_{81} x = \dfrac{3}{2}$.

c)   Write the power set of A = {1, 2, 3}.

d)   Find mode of the data : 0, 1, 6, 7, 2, 3, 7, 6, 6, 2, 6, 0, 5, 6, 0.

e)   Define the term 'Kurtosis'.

f)   The ranks of 10 students in two subjects are as follows :

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

What is the coefficient of rank correlation?

g)   Find means of x & y from the following regression lines :
$3x + 2y = 26$ and $6x + y = 31$.

h)   Give classification of index numbers.

i)   A bag contains 7 white and 9 black balls. Find the probability of drawing a white ball.

j)   Define standard and probable errors.

$(4 \times 10 = 40)$

Q2) Assuming x is small, so that x^2 and higher powers can be neglected, prove

that $\dfrac{\left(1+\dfrac{3}{4}x\right)^{-4}(16-3x)^{\frac{1}{2}}}{(8+x)^{\frac{2}{3}}}$ is approximately equal to $1-\dfrac{305}{96}x$.

Q3) (a) If the sum of three numbers in G.P. is 38 and their product is 1728. Find the numbers.

(b) Find Pearson's coefficient of correlation :

x	10	14	18	22	26	30
y	18	12	24	6	30	36

Q4) Find mean and standard deviation from the data :

Wages (in Rs.)	70-80	80-90	90-100	100-110	110-120	120-130	130-140	140-150
No. of persons	12	18	35	42	50	45	20	8

Q5) Assuming 4 yearly cycle, calculate the trend values by the method of moving averages and plot the actual data and the trend values :

Year	1987	1988	1989	1990	1991	1992	1993	1994	1995
Sales (1000 Rs.)	285	320	310	362	355	336	350	342	359

Q6) (a) Heights of fathers & sons is given. Form the two lines of regressing using this data :

Height of father (inches)	65	66	67	67	68	69	71	73
Height of son (inches)	67	68	64	68	72	70	69	70

(b) Calculate theoretical frequencies using Poisson's distribution :

Deaths	0	1	2	3	4
Frequencies	122	60	15	2	1

Q7) Two independent samples of 8 and 7 items had the following values of the variables.

Sample I	9	11	13	11	15	9	12	14
Sample II	10	12	10	14	9	8	10	

Do the estimates of population variance differ significantly?

(Given at 5% level, for 7 and 6 dof F = 4.20)

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