Time : 2 hrs.   F4 F/M   Busi stats   oct 2008

CODE - TECHNETIUM

Marks :60

Instruction : 1) All questions are compulsory.

2) Each question carries equal marks

3) Simple calculators are allowed.

Q.1 a) Following data gives distribution of marks of some students Find median of   6
the distribution :-

Marks	No. of students
50-60	6
60-70	8
70-80	14
80-90	20
90-100	12
100-110	10

Also plot (i) Less than ogive carve.

b) Define : (i) Simple arithmetic mean for grouped data.   4

(ii) Certain event, Impossible event.

c) Find missing frequency in the following distribution given that the average   5

marks are 66.5 :-

Marks	No. Of. Students
10-20	1
20-30	2
30-40	3
40-50	5
50-60	7
60-70	–
70-80	16
80-90	10
90-100	4

OR

b) Find arithmetic mean and first quartic Q_1 for the following data. **6**

Life (inhrs)	No. of bulbs
300-400	25
400-500	27
500-600	35
600-700	50
700-800	42
800-900	20

Also plot (i) frequency curve.

c) Find mode of the following distribution. **5**

C. I.	Frequency
2000-3000	8
3000-4000	15
4000-5000	20
5000-6000	28
6000-7000	25
7000-8000	10

Also find mode graphically.

Q.2 a) Define (i) Coefficient of Range (ii) coefficient of variation. **4**

If $n=15$, $\sum x = 400$ & standard $= \delta = 12$ deviation find coefficient of variation.

b) Following data gives the number of officers and their salaries. **5**

Salaries	:	4-6	6-8	8-10	10-12	12-14	(in'0,000Rs.)
No. of Officers	:	4	5	10	6	3	

Find variance and standard deuiation.

c) A bag contains 6 blue, 4 white and 3 purple marbles 3 marbles are taken out randomly. **6**

iii) 1 purple and 2 blue marbles are selected.

OR

Q. 2 a)   Two regression lines of y on x and x on y are given below   5

y on x : 10y = 3x + 155

x on y : 10x = 7y + 10

Find $\bar{x}, \bar{y}$ and r

Find y when x = 30

b)   Following data gives weekly expenditure of some families   6

(in 1000 Rs.)

12	32	22	22	18	14	29
18	15	24	31	32	15	31
20	14	28	36	16	16	36
30	18	26	38	13	26	12
31	21	25	37	17	28	17

Prepare frequency distribution, taking class-intervals

as   10-14,   14-18,   18-22,..............

Also plot frequency polygon.

c)   Given the following data, find the missing values.   4

	Group -I	Group -II	Group -I & II
Number	100	---	---
Average	40	43	42
Variance	25	---	21

Q. 3 a)   Find the two regression equations given the following data.   6

X ; : 12 13   15 16 18 20 25

Y ; :   5   4   8   6   7 10   8

b)   Following data gives production of a certain crop for some years calculate   5

5-yearly moving average.

Year	Crop (in tons)
1981	330
1982	332
1983	400
1984	408
1985	430
1986	400
1987	418
1988	450

C) Define (i) Event,

Two 6 faced dice are rolled simultan eously. Find the probability that (i) sum on the uppetmost face is even.

ii) Sum on the upper most faces is 6 or 5

OR

Q.3 a) Find the coefficient of correlation from the data given below giving number of officers on duty and the time people spend waiting to see the office in bank. 6

No. of Officers	Waiting time in min.
x	y
3	12
5	4
4	6
6	3
3	14
2	8

b) Runs scored by two players in last 5 matches are given below. 6

Player 1 : 10 15 16 20 30

Player 2 : 20 25 10 30 40

Which player shows more variability?

c) Explain different values of correlation coefficient 3

with the help of scatter diagram.

Q.4 a) Define (i) Laspeyre's Index Number 4

(ii) Value index Number

b) Calculate Laspeyres' , Paasche's and fisher's Index number for the following data.

Item	Base year (1980)		Current year (1985)	
	Price (P_0)	Qqantity (q_0)	Price (P_1)	Quantity (q_1)
A	200	10	215	9
Q	140	12	160	10
R	170	6	150	10
S	90	0		

c) Define (i) marshal - Edgeworth index number   5

Fill in the blanks _____

   i)   If $r = 1$ then x and y we_____correlated.

   ii) If variance is 64, Standard deviation is _____

   iii) If $Q_1 = 450$ & $Q_3 = 560$, than coefficient of Quartile deviation is _____

   iv) Intersection point of two reqression lines is _____

<div align="center">OR</div>

Q.4 a) Define (i) Simple index number based on aggregates.   8

         (ii) Weighted index number based on aggrgates.

Kind simple and weighted price index numbers based on price relatives.

Commodity	Base year Price	Current year Price	Weights
Sugar	12	18	6
Wheat	8	15	10
Oil	25	35	5
Salt	5	7	7
Jawari	6	8	3

b) A committee of 5 is to be formed from 3 engineers & 5 managers. Find the   5
    probability that the committee contains.

   i)   3 engineers & 2 managers

   ii) No engineer

   iii) At least 2 managers.

c) Say true or false with reason   2

   i)   Arithmetic mean is based on all the observations

   ii) Median is not affected by extreme value.

****