IIIII barcode *BCH-2311*

BCH-2311   Seat No._____

M. Sc. (CA & IT) (Sem. - IV) Examination
April/May – 2014
401 : Statistical Methods

Time : **3** Hours]   [Total Marks : **70**

1 (a) Explain merits and demerits of mode.   **4**
   (b) Prove that correlation co-efficient is   **4**
        independent of change of origin and scale.
   (c) Prove that byx, bxy and r have always the   **2**
        same sign.
   (d) Explain :   **4**
        (i)   Seasonal variation.
        (ii) Secular trend.

2 Attempt any **two** of the following :   **14**
   (a) Calculate mean, median and mode from the
        following distribution :

Class	30 – 40	40 – 50	50 – 60	60 – 70	70 – 80	80 – 90	90 – 100
Freq.	6	10	16	14	10	5	2

   (b) Calculate quartile deviation and its co-efficient.

Weight (kg.)	60	61	62	63	65	70	75	80
No. of workers	1	3	5	7	10	3	1	1

   (c) Two batsment A and B made the following
        scores in a series of cricket matches.

A	14	13	26	53	17	29	79	36	84	49
B	37	22	56	52	14	10	37	48	20	4

   Who is more consistent player ? Answer on the
   basis of the co-efficient of variation, taking 35
   as working mean.

3 Attempt any **two** of the following : **14**

(a) Calculate Karl Pearson's correlation co-efficient for the data given below :

Independent variable (x)	3	7	5	4	6	8	2	7
Dependent variable (y)	7	12	8	8	10	13	5	10

(b) Calculate Karl Pearson's co-efficient of correlation between x and y from the bivariate sample of 140 pairs of x and y as distributed below :

y/x	$10-20$	$20-30$	$30-40$	$40-50$
$10-20$	20	26	–	–
$20-30$	8	14	37	–
$30-40$	–	4	18	3
$40-50$	–	–	4	6

(c) From the following data, calculate Karl Pearson's correlation co-efficient between age and playing habit.

Age (years)	16	17	18	19	20	21	22
No. of Students	350	320	280	240	180	120	50
Regular Players	315	256	182	132	63	18	4

4 Attempt any **two** of the following : **14**

(a) On the basis of following data, obtain regression lines of (i) Y on X and (ii) X on Y.

X	15	27	27	30	38	46
Y	12	15	15	18	22	26

(b)   Out of the two lines of regression given by :

x+2y=8

2x+3y=8

which one is the regression of x on y ? Also

find $\bar{x}$, $\bar{y}$, r, 6_y^2 and $6_x^2 = 12$.

(c)   Compute the two regression equation on the basis of the following information.

	X	Y
Mean	40	45
Standard deviation	10	9

Karl Pearson's co-efficients of correlation between x and y is 0.50. Also estimate the value of y for x=48. Using the appropriate regression equestion.

5   Attempt any **two** of the following :   **14**

(a)   Fit a non-linear trend of the farm $y=a+bx+cx^2$ for the given data :

x	0	1	2	3	4
y	1.0	1.5	1.5	2.5	3.5

(b)   Calculate three yearly and five yearly moving averages for determining trend in the following time series data :

Year	1988	1989	1990	1991	1992
Coal Production	50	36	43	44	38
Year	1993	1994	1995	1996	
Coal Production	38	32	38	41	

(c) Calculate trend by four-yearly moving averages of the data given below :

Year	Production
1988	614
1989	615
1990	652
1991	678
1992	681
1993	655
1994	717
1995	719
1996	708
1997	779
1998	757

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