TQ-116

S.Y. B.C.A. (Sem.-III) Examination
May-2013

CC-205 : Statistical Computing

Time : 3 Hours]   **[Max. Marks : 70**

Instruction :   Use of Scientific Calculator is allowed.

1.   (A)   Attempt any **two** :   **8**
       (1)   Find mean of the following data :

Class	4-6	6-8	8-10	10-12	12-14
frequency	6	12	17	10	5

       (2)   Find Q_1 & Q_3.

Class	3-5	5-10	10-20	20-50	50-80	80-100
frequency	8	12	40	70	15	5

       (3)   Find mode

Class	0-6	6-12	12-18	18-24	24-30	30-36	36-42	42-48	48-54
frequency	13	25	57	79	105	79	57	25	13

     (B)   Attempt any **two** :   **6**
       (1)   Find the harmonic mean of the following numbers :

$$2, \frac{1}{3}, \frac{1}{4}, \frac{1}{8}$$

       (2)   Find median

Class	0-10	10-20	20-30	30-40	40-50
frequency	18	30	46	34	22

       (3)   Find the missing frequency in the following frequency distribution if mean = 37.

Marks	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80
No. of Students	4	4	9	(?)	12	6	3	2

2.   (A)   Attempt any **two** :   **8**
       (1)   Compare the variation of the following two groups.

Group A	28	15	43	9	30	–
Group B	12	38	21	7	25	47

(2)   Calculate S.D. of the following data :

Marks	10	20	30	40	50	60
No. of Students	8	12	20	10	7	3

(3)   Find Q.D and Coeff. of Q.D.

Observation	58	59	60	61	62	63	64	65	66
Frequency	15	20	32	35	33	22	20	10	8

(B) Attempt any **two** :   **6**

(1)   Find Range and coefficient of Range.

Class	5-10	10-15	15-20	20-25	25-30	30-35	35-40	40-45	45-50
Frequency	2	7	10	28	20	18	10	4	1

(2)   Calculate S.D. using the following data regarding income in ₹ of 10 persons.
600, 620, 640, 620, 680, 670, 680, 640, 700, 650.

(3)   Marks out of 25 obtained by 9 students are given below :
7, 4, 10, 9, 15, 12, 7, 9, 7
Calculate mean deviation from mean.

3.   (A) Attempt any **two** :   **8**

(1)   Find out two regression lines for the following data :

X	57	58	59	59	60	61	62	64
Y	67	68	65	68	72	72	69	71

(2)   The heights of a sample of 10 fathers and their eldest sons are given below :

Height of Father (x)	170	167	162	163	167	166	169	171	164	165
Height of Son (y)	168	167	166	166	168	165	168	170	165	168

Compute correlation coefficient.

(3)   In two sets of variables of x and y with 50 observations each, the following data were observed : $\bar{X} = 10$, S.D of X = 3, $\bar{Y} = 6$, S.D. of Y = 2. r (x, y) = 0.3.
However, on subsequent verification it was found that one value of X (=10) and one value of Y (=6) were inaccurate and hence weeded out. With the remaining 49 pairs of values how is the value of correlation coefficient affected ?

(B) Attempt any **two** :   **6**

(1)   Find Karl Pearson's coefficient of correlation for the data given below :

X	3	7	5	4	6	8	2	7
Y	7	12	8	8	10	13	5	10

(2) Compute the two regression coefficients using the values of actual means of X and Y from the data given below and the work out the value of correlation coefficient.

X	7	4	8	6	5
Y	6	5	9	8	2

(3) Distinguish clearly between 'correlation' and 'Regression' analysis.

4. (A) Attempt any **two** :   **8**

(1) Three groups of children contains 3 girls and 1 boy, 2 girls and 2 boys, 1 girl and 3 boys. One child is selected at random from each family. Find the probability that all are boys.

(2) From a set of 18 balls marked with 1, 2, 3, ……. 18 one is drawn at random. What is the chance that its number is either multiple of 3 or 4 ?

(3) A speaks truth in 75% and B speaks truth in 60% of the cases. In what percentage of cases are they likely to contradict each other in stating the same fact.

(B) Attempt any **two** :   **6**

(1) A, B & C in order draw cards from a pack of 52 cards, not replacing their cards after each draw. If a man who draw a heart first wins, what are their respective chances ?

(2) A problem in statistic is given to three students A, B & C whose chances of solving it are $\frac{1}{2}, \frac{1}{4}$ & $\frac{1}{5}$ respectively. What is the probability that the problem will be solved ?

(3) A has 3 shares in a lottery in which there are 3 prizes and 6 blanks. B has 1 share in a lottery in which there is 1 prizes 2 blanks. Show that A has chance of success is to that of B's as 16 : 7.

5. Do as Directed.   **14**

(1) Out of all the measures of central tendency _____ is the only measure which is not unique.
   (a) mean   (b) median
   (c) mode   (d) none of these

(2) What is the S.D. of the series 5, 5, 5, 5, 5 ?
   (a) 0   (b) 5
   (c) 25   (d) None of these

(3) Which of the deciles are less than the first quartile ?
   (a) D_1 & D_2 (b) D_2 & D_3
   (c) D_1, D_2 & D_3 (d) None of these

(4) The mean of 10 numbers is 50. Afterward a new number 24 is added. The mean of 11 number is _____
    (a)   47.63   (b)   50
    (c)   45   (d)   None of these

(5) The relationship between mean deviation and standard deviation is
    (a)   3 M.D = 2 S.D.   (b)   6 M.D = 5 S.D.
    (c)   5 M.D = 4 S.D.   (d)   M.D = S.D.

(6) If the minimum value in a series is 20 and its range is 47, the maximum value of the series is
    (a)   67   (b)   57
    (c)   48   (d)   None of these

(7) If $r = (-1)$, the variables X & Y are
    (a)   linearly related   (b)   independent
    (c)   not linearly related   (d)   none of these

(8) Probable error is used for _____
    (a)   measuring the error in r   (b)   testing significance of r
    (c)   both (a) & (b)   (d)   neither (a) nor (b)

(9) If both regression coefficients are (–ve) then correlation coefficient is _____.
    (a)   (–ve)   (b)   (+ve)
    (c)   zero   (d)   not certain

(10) The probability theory has its origin in _____.
    (a)   gambling   (b)   set theory
    (c)   both (a) & (b)   (d)   None of these

(11) Two dice are thrown simultaneously. The probability that the difference of nos. shown is '1' : _____.
    (a) $\dfrac{11}{8}$ (b) $\dfrac{5}{18}$
    (c) $\dfrac{1}{6}$ (d)   None of these

(12) If A & B are mutually exclusive events then P(AB) = _____
    (a)   0   (b)   1
    (c)   P(A) P (B)   (d)   None of these

(13) If both regression lines coincide then r = _____.
    (a)   1   (b)   (–1)
    (c)   0   (d)   None of these

(14) Find Geometric mean of four values 27, 72, 108, 144.
    (a)   73.15   (b)   74.15
    (c)   70   (d)   None of these

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