NE-116

November-2013

B.C.A. Sem.-III

CC-205 : Statistical Computing

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

Instructions :   (1)   Figures to the right indicate full marks.

                  (2)   Use of scientific calculator is allowed.

1.   (A)   Attempt following :

          (1)   Find the Arithmetic Mean from the following Distribution :   **4**

Monthly Wages (₹)	4 – 6	6 – 8	8 – 10	10 – 12	12 – 14
No. of Workers	6	12	17	10	5

          (2)   Find the Geometric Mean from the following data :   **3**

X	12	18	48	61
F	5	3	2	8

OR

Attempt following :   **4**

          (1)   Find the median from the following Distribution :

Marks	0 – 10	10 – 20	20 – 30	30 – 40	40 – 50	50 - 60
No. of Students	10	20	30	50	40	30

          (2)   Find the Harmonic Mean from the following data :   **3**

Class Interval	10 – 20	20 – 30	30 – 40	40 – 50	50 – 60
Frequency	4	6	10	7	3

  (B)   Attempt following :

          (1)   Find the Mode from the following Distribution :   **4**

Class	0 – 5	5 – 10	10 – 15	15 – 20	20 – 25	25 – 30
Frequency	2	4	4	6	5	3

          (2)   Write any three advantages of Arithmetic Mean.   **3**

OR

Attempt following :

          (1)   Write four functions of Statistics.   **4**

          (2)   An average daily wages of 10 workers in a factory 'A' is ₹ 30 and an average daily wages of 20 workers in a factory 'B' is ₹ 15. Find the average daily wages of all workers of both the factories.   **3**

2. (A) Attempt following :
   (1) Find Quartile Deviation and its coefficient from the following data : **5**

Daily Wages	20 – 30	30 – 40	40 – 50	50 – 60	60 – 70
No. of workers	6	12	18	10	4

   (2) Find the Rank from the following data : **2**
   45, 46, 50, 48, 55, 46

   OR

   Attempt following :
   (1) Find Standard Deviation from the following data : **5**

Class	60 – 62	62 – 64	64 – 66	66 – 68	68 – 70	70 – 72
Frequency	61	63	65	67	69	71

   (2) Write two objectives of Measuring Variability. **2**

   (B) Attempt following :
   (1) Find the Mean deviation from Mean from the following data : **5**

Age	0 – 10	10 – 20	20 – 30	30 – 40	40 – 50	50 – 60	60 – 70
No. of persons	6	5	8	15	7	6	3

   (2) Write any two advantages of Quartile Deviation. **2**

   OR

   Attempt following :
   (1) Find the coefficient of variation from the following data : **5**

Profit	50 – 99	100–149	150–199	200–249	250-299	300-349	350-399
No. of Industries	7	9	4	4	2	2	2

   (2) Write any two advantages of Standard Deviation. **2**

3. (A) Attempt following :
   (1) In a bag there are 5 white and 3 black balls. What is the probability that if they are drawn out one after another, the first ball will be white, the second black, the third white and again the fourth a black one if the ball drawn is not replaced. **4**
   (2) Three groups of children contain respectively 3 girls and 1 boy; 2 girls and 2 boys; 1 girls and 3 boys. One child is selected at random from each group. Find the chance that the three selected consist of 1 girl and 2 boys. **3**

   OR

   Attempt following :
   (1) The meteorologist has forecast the probability of rains on Monday, Tuesday and Wednesday are 0.60, 0.50 and 0.30 respectively. Assuming that the weather from day to day is independent, what is the probability that it will rain at least once in these three days ? **4**
   (2) State and prove the theorem of Compound Probability. **3**

(B) Attempt following :

(1) Define : **4**

    (i) Equally likely Events

    (ii) Exhaustive Events

    (iii) Sample Space

    (iv) Independent Events

(2) Obtain the probability of getting a sum of 7 points when two dice are tossed. **3**

OR

Attempt following :

(1) A candidate is selected for interview of management trainees for 3 companies. For the first company there are 12 candidates, for the second there are 15 candidates and for the third there are 10 candidates. What is the chance of his getting selected in at least one of them companies ? **4**

(2) State and prove the theorem of total probability for k mutually exclusive events. **3**

4. (A) Attempt following :

(1) Find the coefficient of correlation using Actual mean Method from the following data : **4**

X	0.1	0.2	0.3	0.4	0.5
Y	10	20	30	50	40

(2) Explain types of Correlation. **3**

OR

Attempt following :

(1) Find the rank correlation coefficient of the following data : **4**

X	84	51	91	60	68	62	86	58	53	47
Y	78	36	98	25	75	82	90	62	65	39

(2) Find the coefficient of correlation between X and Y by the concurrent deviation method : **3**

X	118	115	115	117	106	104	105	105	103	98
Y	122	127	129	123	123	125	130	130	135	140

(B) Attempt following :

(1) Find the Linear Regression equation of Y on X for the following data : **4**

X	1	2	3	4	6
Y	3	2	5	4	6

(2) State three difference between Correlation and Regression. **3**

OR

Attempt following :

(1) The arithmetic mean of X group and Y group is 36 and 85 respectively. The Standard deviation for the same is 11 and 8 respectively. The correlation coefficient between X and Y is 0.66. Find the two regression equations.   **4**

(2) Define :   **3**

    (i)   Simple Correlation

    (ii)   Partial Correlation

    (iii) Multiple Correlation

5. Do as Directed :   **14**

(1) 45, 78, 12, 46. What is the arithmetic mean of given distribution ?

(2) The sum of Deviations from mean is _____.

(3) Average is also known as _____.

    (a)   Measure of Central Tendency

    (b)   Measure of Central Location

    (c)   Both (a) and (b)

    (d)   None (a) and (b)

(4) Quartile Deviation = _____ * Mean Deviation.

(5) For an open – end distribution _____ cannot be determined.

(6) The Standard Deviation of the series 5, 5, 5, 5, 5 is _____.

(7) If the mean Deviation of a distribution is 6.4, the Standard Deviation is _____.

(8) If Standard Deviation is 20 then the value of Variance _____.

(9) Define : Probability.

(10) _____ is the maximum value of Probability.

(11) If the Probability of event A happens is 1/3. Then _____ is the probability that event A not happens.

(12) _____ is the minimum value of Correlation.

(13) If $r_{xy} = 0$, the variable X and Y are :

    (a)   Linearly related

    (b)   Independent

    (c)   Not linearly related

    (d)   None of the above

(14) If $r_{xy} = 1$, the variable X and Y have _____ correlation.

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