

Seat No. : \_\_\_\_\_

**JJ-108**

January-2021

**B.C.A., Sem.-III**

**CC-205 : Statistical Methods**

**Time : 2 Hours]**

**[Max. Marks : 50**

- Instructions :** (1) All Questions in **Section-I** carry equal marks.  
(2) Attempt any **TWO** questions in **Section-I**.  
(3) Question-5 in **Section-II** is **COMPULSORY**.

**Section-I**

1. (A) (i) Find Arithmetic mean, median and mode for the following data : **10**  
6, 10, 4, 3, 9, 11, 22, 18

- (ii) Calculate the modal sales of the 100 companies from the following data :

Sales in ₹ (Lakhs)	58-60	60-62	62-64	64-66	66-68	68-70	70-72
No. of companies	12	18	25	30	10	3	2

- (B) (i) The mean of a certain number of observations is 40. If two or more items with values 50 and 64 are added to this data, the mean rises to 42. Find the number of items in the original data. **10**

- (ii) From the following distribution, calculate missing frequency if mean of distribution is 211.

Class	100-150	150-200	200-250	250-300	300-350
<i>f</i>	4	5	a	2	2

2. (A) (i) Calculate mean deviation from median and its co-efficient for the following salaries : **10**

₹ 1030, ₹ 500, ₹ 680, ₹ 1100, ₹ 1080, ₹ 1740, ₹ 1050, ₹ 1000, ₹ 2000,  
₹ 2250, ₹ 3500 and ₹ 1030

- (ii) Calculate Standard deviation of 10, 12, 16, 8, 25, 30, 14, 11, 13, 11

- (B) (i) Following are the observations shows the one-day sales of a shopping mall, where we determine the frequency of the first 50 customers of different age group. **10**

Calculate the quartile deviation and coefficient of quartile deviation :

<b>Age in years</b>	40-44	45-49	50-54	55-59	60-64	65-69
<b>Customers</b>	5	8	11	10	9	7

- (ii) Find the coefficient of variation of 24, 26, 33, 37, 29, 31.
3. (A) (i) A number is selected at random from 1 to 100. Find the probability that it is divisible by (a) '5' (b) '7' (c) '5' and '7' (d) '5' or '7'. **10**
- (ii) A speak the truth 2 out of 3 times and B, 4 out of 5 times. They agree in the assertion that a bag containing 6 balls of different colours a black ball has been drawn. Find the probability that the statements are true.
- (B) (i) A bag contains 4 red and 3 black balls. A second bag contains 2 red and 4 black balls. One bag is selected at random. From the selected bag, one ball is drawn. Find the probability that the ball drawn is red. **10**
- (ii) In a college 20% of students are girls. In a random sample of 5 students, find the probability that there are at the most 2 girls.
4. (A) (i) The success of a shopping centre can be represented as a function of the distance (in miles) from the centre of the population and the number of clients (in hundreds of people) who will visit. The data is given in the table below. Calculate Correlation Coefficient. **10**

<b>No. of Customers (x)</b>	8	7	6	4	2	1
<b>Distance (y)</b>	15	19	25	23	34	40

- (ii) From the following data of hours worked in a factory ( $x$ ) and output units ( $y$ ), Determine the regression line of  $y$  on  $x$ .

Hours ( $x$ )	Production ( $y$ )
80	300
79	302
83	315
84	330
78	300
60	250
82	300
85	340
79	315
84	330
80	310
62	240

- (B) (i) Find Spearman's Rank Correlation Coefficient :

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$x$	15	20	28	12	40	60	20	80
$y$	40	30	50	30	20	10	30	60

- (ii) The two regression lines are  $3x + 2y = 26$  and  $6x + 3y = 31$ , Find the correlation coefficient.

### Section – II

5. Attempt any **Five** :

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- (1) If  $r = +1$ , the correlation is said to be \_\_\_\_\_.
- (a) High degree of +ve correlation      (b) High degree of –ve correlation  
(c) Perfect +ve correlation                (d) Perfect –ve correlation
- (2) The sum of the deviations from mean is \_\_\_\_\_.
- (a) Zero    (b) One  
(c) Not defined                                        (d) None of the above

- (3) What is the difference between the standard deviations of the following two series :  
10, 20, 30, 35, 43, 50 and 3, 13, 23, 28, 36, 43 ?
- (a) 0 (b) 5  
(c) 7 (d) None of the above
- (4) \_\_\_\_\_ is the probability that two different persons has different birthdates in a non-leap year.
- (a)  $1/365$  (b)  $2/365$   
(c)  $364/365$  (d) None of the above
- (5) \_\_\_\_\_ is the minimum value of Correlation.
- (a) 0 (b) +1  
(c) (-1) (d) None of the above
- (6) The probability that event A happens is  $1/3$ . Then the probability that event A doesn't happen is \_\_\_\_\_.
- (a)  $1/3$  (b)  $2/3$   
(c) 1 (d) None of the above
- (7) The standard deviation of the series 5, 5, 5, 5, 5 is \_\_\_\_\_.
- (a) 1 (b) 0  
(c) 5 (d) -1
- (8) When an investigator uses the data which has already been collected by others, such data is called \_\_\_\_\_.
- (a) Primary data (b) Collected data  
(c) Processed data (d) Secondary data
- (9) The sample mean  $\bar{x}$  is a
- (a) statistics (b) parameter  
(c) variable (d) constant
- (10) Rank the score of 4 in the following set :  
1, 4, 3, 4, 5, 6, 9
- (a) 4.5 (b) 4  
(c) 3 (d) 3.5