

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

**DE-101**

**December-2018**

**BCA., Sem.-III**

**CC-205 : Statistical Computing  
(Old Syllabus)**

**Time : 2:30 Hours]**

**[Max. Marks : 70**

- Instructions :** (1) Use of scientific calculator is allowed.  
(2) Figures to the right indicate marks.

1. (A) (1) Find mean and mode from following set of points :

7

X	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80
f	18	16	15	12	10	5	2	1

- (2) Find the missing frequencies in the following table given that median of the data is 54 and total frequency is 120

7

Class	30-40	40-50	50-60	60-70	70-80
Frequency	12	—	35	—	11

**OR**

- (1) Calculate median and mode from the following data.

Class	0-7	7-14	14-21	21-28	28-35	35-42
Frequency	7	11	24	19	12	9

- (2) Find GM and HM

Diameter	33-35	36-38	39-41	42-44	45-47
No. of items	17	19	23	21	27

- (B) Do as directed : (any **four**)

4

- (1) State the relation among mean, median and mode.
- (2) Define weighted mean.
- (3) Give an example for which AM and GM are equal.
- (4) What is mode ?
- (5) State which average will be appropriate, when the quantities are in ratio.

2. (A) (1) Calculate the SD of the following data. 7

Class	0-20	20-40	40-60	60-80	80-100	100-120	120-140
Frequency	9	17	43	82	81	44	24

- (2) Explain with suitable examples the term 'dispersion'. Mention some common measures of the dispersion and describe the one which you think to be most important of them. 7

**OR**

- (1) Find Q1 and D9 for the following frequency distribution :

Class	30-35	35-40	40-45	45-50	50-55	55-60	60-65
Frequency	3	5	12	18	14	6	2

- (2) State and discuss the various measures of the dispersion.

- (B) Do as directed : (any **four**) 4

- (1) Define percentile.
- (2) State the relationship between MD and QD.
- (3) In a distribution of 10, 20, 30, 40, 50, and x is 30, the sum of deviations from x will be \_\_\_\_\_.
- (4) Find the range of the series 20, 2, 15, 30, 15, 30, 10 and 50.
- (5) State the formula for CV.

3. (A) (1) Obtain the coefficient of the correlation for data given below. 7

X	1	2	3	4	5	6	7
Y	9	8	10	12	11	13	14

- (2) (i) Explain regression and correlation 7  
(ii) What are the regression coefficients? State their properties.

**OR**

- (1) Define :  
(i) Correlation (ii) Regression (iii) Dispersion (iv) Positive correlation  
(v) Negative correlation (vi) Multiple correlation (vii) Partial correlation
- (2) From the following data find two lines of the regression.

X	16	20	17	21	15
Y	50	60	58	60	55

- (B) Do as directed : (Any **three**) 3

- (1) Draw the rough sketch of the scatter diagram for the correlation coefficient: 0.9.
- (2) Find r, if the regression coefficients are -0.8 and -0.56.
- (3) State the relation between regression coefficients and correlation coefficient.
- (4) What is least squares method ?

4. (A) (1) There are 4 white and 3 red in box B1 and 4 red and 3 white balls in the box B2. A coin is tossed. If coin shows head box B1 is selected and two balls drawn at random from it and otherwise box B2 is selected and two balls are drawn at random from it. What is the probability that both selected balls white ? 7
- (2) Three people are shooting at a target. The probabilities that they hit the target are 0.5, 0.6 and 0.8. 7
- (i) Find the probability that all three hit the target.
- (ii) Find the probability that all three miss the target.

**OR**

- (1) Define :  
 (i) Probability (ii) Sample space (iii) Exclusive events (iv) Exhaustive events  
 (v) Equally likely events (vi) Addition rule (vii) Independent events
- (2) Prove that (i)  $X'$  and  $Y$  (ii)  $X'$  and  $Y'$  are independent events, if  $X$  and  $Y$  are independent events.
- (B) Do as directed : (any **three**) 3
- (1) State the multiplication rule for the probability.
- (2) State the range of the probability.
- (3) If  $P(A) = 0.3$ ,  $P(B) = 0.4$  and  $P(A \cup B) = 0.6$ ,  $P(B | A) = \underline{\hspace{2cm}}$ .
- (4) If  $A$  and  $B$  are independent events,  $P(A | B) = \underline{\hspace{2cm}}$ .

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**DE-101**

**December-2018**

**BCA., Sem.-III**

**CC-205 : Statistical Methods  
(New)**

**Time : 2:30 Hours]**

**[Max. Marks : 70**

- Instructions :** (1) Use of scientific calculator is allowed.  
(2) Figures to the right indicate marks.

1. (A) (1) Define the term statistics. Discuss various functions and the importance of the statistics. **7**

- (2) From the data given below of the three types of some item, calculate an average price per item. **7**

Type	Price per item (in ₹)	Money spent (in ₹)
X	1.00	50
Y	1.50	30
Z	2.00	20

**OR**

- (1) For the data given that median is 46, find the missing values.

X	10-20	20-30	30-40	40-50	50-60	60-70	70-80	Total
f	12	30	—	65	—	25	18	229

- (2) What do you understand by central representative of the data? Discuss various measures of the central representative with examples.

- (B) Do as directed : (any **four**) **4**

- (1) For the calculation of speed \_\_\_\_\_ used. (AM, GM, HM)  
(2) The presence of the extreme observations does not affect \_\_\_\_\_.  
(Mean, Median, Mode)  
(3) \_\_\_\_\_ is the mean of the first n-natural numbers.  
(4) Define HM.  
(5) The positional measure of the central tendency is also called \_\_\_\_\_.

2. (A) (1) Define the term variation; explain different measures of variations and its significance. 7

- (2) Calculate the mean deviation about median for the following data : 7

Class	0-10	10-20	20-30	30-40	40-50	50-60
Frequency	6	7	15	16	4	2

**OR**

- (1) Mean and standard deviation of a group of 100 observations were found to be 20 and 3, respectively. Later on it was found that 3- observations were incorrect, which were recorded as 18, 21 and 21. If these incorrect observations are omitted, find the new mean and standard deviation.

- (2) From the prices of items A and B below, find out which is more stable in value:

A	49	51	50	52	58	56	53	52	54	35
B	101	104	103	104	107	106	105	105	107	108

- (B) Do as directed : (any **four**) 4

- (1) Third decile for the observations 15, 10, 20, 25, 18, 11, 9 and 12 is \_\_\_\_\_.
- (2) State formula for inter-quartile range.
- (3) State relationship about MD, QD and SD.
- (4) If SD for the data  $x_1, x_2, x_3, \dots, x_k$  is S, then SD of  $2018 + x_1, 2018 + x_2, 2018 + x_3, \dots, 2018 + x_k$  is \_\_\_\_\_.
- (5) Define percentile.

3. (A) (1) Discuss various types of the correlation with the scatter diagrams. 7

- (2) From the following data, obtain a regression line : 7

X	14	19	24	21	26	22	15	19	20
Y	31	36	48	37	50	45	33	39	41

**OR**

- (1) Discuss the various methods for measuring correlation between two variables.
- (2) Calculate regression coefficients and correlation coefficient from the data given below.

<b>X</b>	1	2	3	4	5	6	7	8	9
<b>Y</b>	9	8	10	12	11	13	14	16	15

(B) Do as directed : (any **three**) **3**

- (1) State the types of the data for which rank correlation gives better correlation.
- (2) What is least square method ?
- (3) State the range of coefficient of correlation.
- (4) Say True/False: Both the regression coefficients and correlation coefficient always must have same sign.

4. (A) (1) Bag I contains 4 white and 6 black balls while another Bag II contains 4 white and 3 black balls. One ball is drawn at random from one of the bags and it is found to be black. Find the probability that it was drawn from Bag I. **7**
- (2) A and B are two events such that  $P(A) = 0.54$ ,  $P(B) = 0.69$  and  $P(A \cap B) = 0.35$ . Find (i)  $P(A \cup B)$  (ii)  $P(A' \cap B')$  (iii)  $P(A \cap B')$  (iv)  $P(B \cap A')$ . **7**

**OR**

- (1) There are two therapies T1 and T2 available for curing a patient suffering from a certain disease. The patient can choose any one of the two therapies. If he selects T1 the probability of his recovery from the disease is  $\frac{7}{8}$  and if he selects therapy T2 the probability of his recovery the disease is  $\frac{9}{10}$ . Given that the patient is cured, what is the probability that he has selected therapy T2 ?
- (2) Prove that (i) A' and B (ii) A and B' are independent events, if A and B are independent events.

(B) Do as directed : (any **three**)

**3**

- (1) The probability of drawing a club card from a pack of cards is \_\_\_\_\_.
- (2) Events are said to be equally likely, if \_\_\_\_\_.
- (3) Find the probability of getting an integer 2 in a single toss of a die, given that a prime number is obtained.
- (4) If A and B are independent events,  $p(A / B) =$  \_\_\_\_\_.
- (5) State the multiplication rule for the probability.

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