B.Tech. Sem-I C.S.B.S Winter-2019

B. TECH. (COMPUTER SCIENCE & BUSINESS SYSTEMS) (CBCS - 2018 COURSE) B.Tech. (CSBS) Sem - I: WINTER- 2019
SUBJECT: STATISTICS-I (UE)

Wednesday 20-11-2019
10:00 AM-01:00 PM

W-20421-2019
Max. Marks: 60

N.B.:

1) All questions are **COMPULSORY**.
2) Figures to the right indicate **FULL** marks.

Q.1 What are the methods by which primary data can be collected? Write a brief account of each of them. **[10]**

OR

What is secondary data? Explain the precautions to be taken while using such data. **[10]**

Q.2 Calculate the rank correlation coefficient from the following data: **[10]**

X	37	52	75	11	69	78	90	40	32	50
Y	69	48	80	15	49	70	95	16	21	25

OR

Calculate the Karl Pearson's coefficient of correlation from the following: **[10]**

Y \ X	18	19	20	21	22
0 – 5	--	--	--	3	1
5 – 10	--	--	--	3	2
10 – 15	--	--	7	10	--
15 – 20	3	5	4	--	--
20 – 25	3	2	--	--	--

Q.3 What is sampling? Explain the different methods of sampling. **[10]**

OR

What are the merits and demerits of sampling technique? **[10]**

Q.4 Calculate the first four moments and find the values of β_1 and β_2 from the data given below: **[10]**

Marks	0 – 20	20 – 40	40 – 60	60 – 80	80 – 100
No. of students	8	12	20	6	4

OR

a) A dealer in refrigerators estimates from his past experience the probabilities of his selling refrigerators in a day. These are as follows: **[05]**

No. of refrigerators sold in a day	0	1	2	3	4	5	6
Probability	0.03	0.20	0.23	0.25	0.12	0.10	0.07

Find the mean number of refrigerators sold in a day.

b) Find the moment generating function of the Poisson distribution. **[05]**

P.T.O.

Q.5 a) A problem in physics is given to three students X, Y and Z whose chances of solving it are 1/2, 3/4 and 1/4 respectively. What is the probability that the problem will be solve if all of them try independently? **[05]**

b) A pair of unbiased dice is rolled. If the sum of seven has appeared, find the probability that one of the dice shows four. **[05]**

OR

a) Bag first contains 7 blue and 5 red balls. Bag second contains 3 blue and 7 red balls. Bag third contains 4 blue and 9 red balls. A bag is chosen at random, a ball is drawn randomly from this bag. It turns to be blue. Find the probability that bag first was chosen. **[05]**

b) A bag contains 6 white and 4 black balls and 5 balls are successively drawn out and not replaced. What is the probability that they are alternately of different colors? **[05]**

Q.6 Obtain the r^{th} raw moment of chi-distribution with n degrees of freedom. Hence, find mean and variance. **[10]**

OR

Find the coefficient of skewness and kurtosis of t-distribution. **[10]**

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