

STELLA MARIS COLLEGE (AUTONOMOUS) CHENNAI-86

(For candidates admitted during the year 2019-20)

Subject code: 19MT/AC/MS45

B.C.A DEGREE EXAMINATION, APR - 2021

FOURTH SEMESTER

COURSE: ALLIED – CORE

PAPER: MATHEMATICS FOR COMPUTER SCIENCE - II

TIME: 1 1/2 HOURS

MAX MARKS: 50

SECTION-A (3x2=6)

ANSWER ALL THE QUESTIONS

1. State any two methods of studying Correlation.
2. Bring out the fallacy in the statement: The mean of a binomial distribution is 15 and its standard deviation is 5.
3. What are the two types of errors in testing of hypothesis?

SECTION-B

ANSWER ANY THREE QUESTIONS (3 × 8 = 24)

4. Calculate and analyse the correlation coefficient between the height of father and son from the given data by taking deviations from their mean

Height of father	64	65	66	67	68	69	70
Height of son	66	67	65	68	70	68	72

5. In a sample of 1000 items, the mean weight is 450 kg with a standard deviation of 15 kg. Assuming the normality of the distribution, find the number of items weighing between 40 and 60 kg.
6. The sales manager of a large company conducted a sample survey in States A and B taking 400 simple salesmen in each case. The results were :

	State A	State B
Average Sale	Rs. 2500	Rs. 2200
Standard Deviation	Rs. 400	Rs. 550

Test whether the average sales is the same in the two states at 1% level.

7. In a laboratory experiment, two random samples gave the following results :

Sample	Size	Sample Mean	Sum of squares of deviations from the mean
I	10	10	90
II	12	14	108

Test the equality of sample variance at 5% level of significance.

SECTION-C

ANSWER ANY ONE QUESTION (1 × 20 = 20)

8. a) Fit a Poisson distribution to the following data and calculate theoretical frequencies:

Deaths	0	1	2	3	4
Frequency	122	60	15	2	1

b) 1000 students at college level were graded according to their I.Q. and the economic conditions of their homes. Use chi-square test to find out whether there is any association between economic conditions at ant I.Q. Test at 5% level.

Economic Conditions	I.Q. level			Total
		High	Low	
Rich		460	140	600
Poor		240	160	400
Total		700	300	1000

(10+10)

9. a) Obtain regression equation of Y on X and X on Y by taking deviations from the assumed mean (assumed mean for X as 5 and Y as 20), hence use it to estimate Y when $X=10$ from the following data

X	2	4	6	8
Y	10	20	25	30

b) A company has been producing steel tubes of mean inner diameter of 2.00 cm. A sample of 10 tubes gives an inner diameter of 2.01cm. and a variance of 0.004 cm. Is the difference in the value of means significant (Test at 5% level)?

(14+6)
