STELLA MARIS COLLEGE (AUTONOMOUS) CHENNAI – 600 086.

COURSE CODE: 19AF/AC/SB15

B.COM A & F DEGREE EXAMINATION – NOVEMBER 2021

ACCOUNTING & FINANCE

COURSE : ALLIED – CORE
PAPER : STATISTICS FOR BUSINESS DECISION
TIME : 3 HOURS **MAX. MARKS: 100**

SECTION – A

Answer all the questions: **(3 x 4 = 12)**

1. What is chi-square and its uses?
2. A simple random sample of size 100 has mean 15, the population SD being 5. Find an confidence interval of population mean with a confidence level of i) 95% ii) 99%
3. Given the following equation
   $Y_c = 84.26 + 5.8X$ (Origin 2010 , X unit = 1 year)
   Change the origin to i) 2007 ii) 2017

SECTION – B

Answer any THREE questions: **(3 x 16 = 48)**

4. The following table gives the number of students having different heights and weights:

Height(cm)	Weight(kg)					
	55-60	60-65	65-70	70-75	75-80	TOTAL
150 - 155	1	3	7	5	2	18
155- 160	2	4	10	7	4	27
160 - 165	1	5	12	10	7	35
165 - 170	-	3	8	6	3	20
TOTAL	4	15	7	28	16	100

Find the co-efficient of correlation between heights and weights of the students. (16 marks)

5. (a) What do you mean by Type I and Type II error? (4 marks)

   (b)The research unit in an organization wishes to determine whether scores on the scholastic aptitude test are different for male and female applicants. Random samples of applicant's file are taken and summarized below:

	Female	Male
Mean	502.1	510.5
SD	86.2	90.4
n	399	204

Using the above sample data test the Null Hypothesis that the average score is same for population male and female applicants. Use 5% level of significance. (12 marks)

6. (a) FILL UP (2x3=6 marks)

i. The number of degrees of freedom for chi-square computed for a 5x4 contingency table is _____

ii. The number of degrees of freedom for binomial and poisson distribution are _____ and _____ respectively.

iii. _____ is a statistical test used on paired nominal data.

(b) To test the effectiveness of inoculation against cholera the following results were obtained.

No of persons	Attacked	Not attacked
Inoculated	70	530
Not inoculated	155	745

Does inoculation prevent attack from cholera. (10 marks)

7. (a) Explain the utility of time series with suitable example. (6 marks)

(b) Find the seasonal indices from the following time series by the method of simple average (10 marks)

Year	**Quarterly Sales (Rs. in '000)**			
	I	**II**	**III**	**IV**
1990	65	58	56	61
1991	68	63	60	69
1992	70	67	68	66
1993	67	62	60	64
1994	70	60	66	70

SECTION – C

Answer any ONE question: (1 x 40 = 40)

8. (A) A farmer applied 3 types of fertilizers on 4 separate plots. The figure on yield per acre are tabulated below: (30 marks)

Fertilizer	**Plot (yield)**				
	A	**B**	**C**	**D**	**TOTAL**
Nitrogen	45	40	38	37	160
Potash	43	41	45	38	167
Phosphates	39	39	41	41	160

(a) Use coding method subtracting 40 from the given numbers and tabulate the data

(b) Test whether the plots are materially different in fertility.

(c) Test whether the fertilizers make any difference in yield.

(B) Values of a variate in two samples are given below (10 marks)

Sample I	5	6	8	1	12	4	3	9	6	10
Sample II	2	3	6	8	1	10	2	8		

Test the significance of the difference between the two sample variances

9. (A)

X	158	160	163	165	167	170	172	175	177	181
Y	163	158	167	170	160	180	170	175	172	175

a) Find the two lines of regression and estimate Y when X = 164 and 162

b) Find out the estimated values of Y and calculate the standard error of the estimate S_{yx} (30 marks)

(B) From the following regression equations:

$4X+3Y+7=0$

$3X+4Y+8=0$

Find means of X and Y and correlation coefficient. (10 marks)