LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

M.Com.DEGREE EXAMINATION –**COMMERCE**

FIRST SEMESTER – **APRIL 2019**

16/17/18PCO1MC01– ADVANCED BUSINESS STATISTICS

Date: 01-04-2019   Dept. No.   Max. : 100 Marks

Time: 01:00-04:00

Part-A Answer ALL questions (10 x2=20)

1. What is Statistics?
2. Calculate the range and its coefficient from the following data: 12,8,9,10,4,14,15
3. What is Standard deviation?
4. Define Skewness.
5. What is the probability that a leap year selected at random will contain 53 Sundays?
6. Calculate the expected return on investment of Mutual Fund A and Mutual Fund B from the following details, and suggest your preference.

Economic Condition	Probability	ROI of Mutual Fund A	ROI of Mutual Fund B
Boom	0.3	20%	30%
Normal	0.5	10%	10%
Depression	0.2	0%	-30%

7. What is paired sample sign test?
8. Give the meaning of c-chart.
9. The average number of defectives in 23 samples of size 2000 cookers was found to be 16 percent. Construct a p-Chart.
10. A card is drawn at random from a well-shuffled pack of cards. What is the probability that it is a heart or queen?

Part-B Answer any Four questions (4x10=40)

11. Is statistics a science or an art? Explain.
12. Bring out the limitations of statistics.
13. Calculate Pearson's co-efficient of skewness:

Mid x	6-18	18-30	30-42	42-54	54-66	66-78	78-90
f	8	14	18	36	30	20	10

14. Goals scored by Chennai City FC and East Bengal FC in 2018 are as follows:

Number of Goals scored in a match	No. of Matches played by Chennai City FC	No. of Matches played by Bengal FC
0	27	17
1	9	9
2	8	6
3	5	5
4	4	3

Which football team is more consistent?

15. Find out whether there is any significant correlation between amount spent on advertisement and sales volume given below:

Advertisement (Rs.'000)	57	59	62	63	64	65	55	58	57

Sales (Rs. '000)	113	117	126	126	130	129	111	116	112

16. From the following data, obtain the two regression equations:

EPS (X)	6	2	10	4	8
Dividend (Y)	9	11	5	8	7

Find (a) If EPS (X) is 5, what is the dividend(Y)? (b) What is the EPS (X), if the dividend(Y) is 10?

17. The following data provide the value of sample mean and range for the samples of range chart. Determine whether the process is in control.

Sample No.	1	2	3	4	5	6	7	8	9	10
Mean	11.2	11.8	10.8	11.6	11.0	9.6	10.4	9.6	10.6	10.0
Range	7	4	8	5	7	4	8	4	7	9

Conversion factors for m=5 are $A_2=0.577$, $D_3=0$, and $D_4=2.115$

Part-C Answer any TWO questions (2x20=40)

18. Explain the application of statistics in various fields.

19. A beverage company appoints four salesmen for East, West, North and South Zones, and observes their sales in their respective zones in three season's viz. Summer, Winter and Monsoon. The sales volume (Rs. in lakhs) is given in the following table:

Seasons	East	West	North	South	Season's Total
Summer	36	36	21	36	129
Winter	28	29	31	31	119
Monsoon	26	28	29	29	112
Salesmen's Totals	90	93	81	96	360

Using two-way Anova, you are required to find out

(a) Do the salesmen significantly differ in performance?

(b) Is there significant difference between the seasons?

20. A movie producer is bringing out a new movie. In order to map out his advertising campaign, he wants to determine whether the movie will appeal most to particular age group or whether it will appeal equally to all age groups, the producer takes a random sample from persons attending preview of the new movie, and obtains the following results:

	Age under 20	20-39	40-59	60 & above	Total
Liked the movie	146	78	48	28	300
Disliked the movie	54	22	42	22	140
Indifferent	20	10	10	20	60
Total	220	110	100	70	500

Applying chi-square test, what inference will you draw from the data?

21. The data on prices (Rs. in per kg.) of a certain commodity during 2014 to 2018 are shown below:

	2014	2015	2016	2017	2018
Q1	45	48	49	52	60
Q2	54	56	63	65	70
Q3	72	63	70	75	84
Q4	60	56	65	72	66

Compute the seasonal indexes by the average percentage method and obtain thedeseasonalised values.

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