

LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034



M.Com.DEGREE EXAMINATION –COMMERCE

FIRST SEMESTER – APRIL 2018

CO 1812– ADVANCED BUSINESS STATISTICS

Date: 25-04-2018
Time: 09:00-12:00

Dept. No.

Max. : 100 Marks

Part-A Answer ALL questions.

(10 x 2 marks)

(Use the enclosed Table: 'Healing Lifeline Survey Data' to answer Qs. 1 and, 2)

- (1)a) Identify an interval and a nominal variable.(1 mark); b) What is the 'range' for the variable 'P5EDUC'? (1mark)
- (2)Calculate the mean value for the variable 'P7Sleep' for 'P1AGE' values ABOVE 50 years. (2 marks)
- (3)When should data be transformed?
- (4) What is 'kurtosis'?
- (5)Explain 'Control Charts'.
- (6)What is a normal distribution?
- (7)Identify two benefits of a 'Pie Diagram'.
- (8)Explain 'Poisson Distribution'.
- (9)Mention any two utilities of a '1-tailed test'.
- (10)Can β error be avoided?

Part-B

Answer any FOUR questions.

(4 x 10 = 40 marks)

(Use the enclosed Table: "Healing Lifeline Survey Data' to answer Qs. 11 and, 16)

- (11)Develop an interval variable combining B2Excracs, B3Nosmok,& B4Homefd, variables. Code and label it, appropriately (2 marks). Calculate its Variance (4 marks). Prepare a frequency table for the variables, 'B1Healif' & 'B3Nosmok' and interpret. (4 marks)-PLEASE CHECK DATA TABLE AT THE END.
- 12) The number of PAVEMENTS in a few Corporation Wards, were selected at random, to check their USAGE Pattern by the locals and citizenry. The Usage Pattern of

PAVEMENTS adjacent to Prominent Streets Across THREE Corporation Wards, in Chennai, are shown below. Test the hypothesis (level of significance of 0.05) that the USAGE PATTERN of Pavements is independent of CORPORATION WARDS Category.

PAVEMENT USAGE PATTERN	CORPORATION WARD CATEGORY		
	A	B	C
<i>Storing</i>	66	65	35
<i>Commercial</i>	68	49	38
<i>Parking</i>	32	66	73
<i>Waste Area</i>	51	53	76

(13) Answer the following:

- The chance of winning a competition is 65%. If 30 countries of 5 athletes each, take part in the competition, in how many countries, 4 or more athletes will win?
- A refrigerator contains 3 apples and 4 oranges. Four members in a family A, B, C & D, in order takes one fruit each, and does not replace it. The family member who takes an apple gets a gift of Rs. 500. Determine the expectations.

(14) The average Veg. Biryani (packed weight), in a restaurant was 500 gms., with a standard deviation of 100 gms. A random sample of 64 veg. Biryani Packets were drawn from the restaurant. a) What is the probability that the arithmetic mean of the sample exceeds 425 gms? Interpret the result. b) Find the value of sample arithmetic mean within which the middle 95% of all sample means will fall.

(15) Help the Class Teacher in a Chennai School by using the Sign Test to check for improvement in Student Performance, 'before' & 'after' a new Remedial Learning Program was announced two weeks back.

Before	36	35	26	18	38	42	30	22	45
After	48	87	77	56	82	40	65	53	80

(16) What is the correlation between 'C1HEALHA' and 'P7SLEEP'? (CHECK the HEALING LIFELINE SURVEY TABLE, AT THE END)

OR

Using the attached table on 'HEALING LIFELINE SURVEY ': Suggest any model of relationships? Identify any two research propositions you would consider as relevant to the study. Identify clearly the Dependent and independent variables in your model. Report the explained variance, unexplained variance and the R2 value.

(17)a) Explain the difference between 'Validity and Reliability' using illustrations?

b) Explain 'R Charts' and 'Six Sigma'.

Part-C

Answer any TWO questions.

(2 x 20 = 40 marks)

18. The following are the health scores of three groups of politicians exposed to three types of food patterns and culture, i.e. South Indian, Thai, and Moroccan.

S.Indian	68	148	183	121			
Thai	80	135	137	110	96	180	73
Moroccan	92	109	105	173	129		

Using the H-test, @ 0.05 and 0.01 sig. levels, test the H0, that the three food patterns have equal impact on health.

19. Perform a Two-way ANOVA using the following information.

EMPLOYEE CATEGORY	SKILL ACQUISITION LEVEL			
A	100	110	100	90
B	120	140	130	130
C	100	120	100	120

Transform the above data by subtracting '80' from each of the values. F- table values @ 0.05 3,6 = 4.76; 2,6 = 5.14; 1,6 = 5.99

20. In an accounting department of a bank 138 accounts are selected at random and examined for errors. Suppose the following results have been obtained:

No. of Errors	0	1	2	3	4	5	6
Freq. of Errors	75	50	6	3	2	1	1

On the basis of this information can it be concluded that the errors are distributed according to the Poisson probability law? (For $v = 2$, chi-square at 0.05 = 5.99)*****

21. Calc

Year
20

20
20
20
20

HEALING LIFELINE SURVEY

Sno	P1Age	P2Gender	P3Relign	P4Reside	P5Educ	P6Income	P7Sleep	B1Healif	B2Exercs	B3Nosmok	B4Homefd	C1HealHa		
1	65	1	1	2	24	3	12	2	2	7	7	18		
2	62	1	2	3	20	2	8	2	4	4	2	12		
3	38	2	3	3	17	2	12	3	1	7	1	12		
4	29	2	2	1	16	1	6	4	6	4	4	18		
5	52	1	3	2	21	2	6	7	1	7	1	16		
6	62	2	1	2	19	1	12	7	1	1	2	11		
7	26	2	1	1	17	1	11	5	1	7	4	17		
8	62	2	2	2	20	4	9	7	3	4	2	16		
9	47	2	1	1	23	4	9	4	5	4	2	15		
10	31	2	2	2	18	1	6	4	1	1	4	10		
CODE	VARIABLE LABELS							CODE	VARIABLE LABELS					
P1Age	1. Age (in Years)								The following variables are coded '1' (Very Strongly Disagree to '10' = Very Strongly Agree)					
P2Gender	2. Gender (1 Male; 2= Female)								B1Healif	I have a healthy lifestyle.				
P3Relign	3. Religion (1= Hindu; 2= Xian; 3= Muslim)								B2Exercs	I engage in physical exercise like walks etc at least once a week.				
P4Reside	4. Your residence area: 1=zone1; 2= zone2; 3= zone3.								B3Nosmok	I am not a smoker.				
P5Educ	5. Educational Qualification (Years of College Education))								B4Homefd	I take home food almost every day.				
P6Income	6. Monthly income (in '000's of Rupees)								C1HealHa	Healthy Habits, [Combined values of variables B1Healif + B2Exercs + B3Nosmok + B4Homefd].				
P7Sleep	7. Number of hours of sleep/day													

