LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

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

FIRST SEMESTER – **APRIL 2016**

CO 1812 - ADVANCED BUSINESS STATISTICS

Date: 28-04-2016
Time: 01:00-04:00

Dept. No.

Max. : 100 Marks

Part-A

Answer ALL questions.   (10 x 2 marks)

(Use the enclosed Table: 'Academic Study Project' to answer Qs. 1 to 3, & 6)

What are the 'ranges' for the variables 'GoodEco', & 'ProacHom'? ;

Calculate the   X for the variable 'Good Eco' for 'Males' (refer variable 'GENDER').

Combine the variables 'Pro1' and 'Pro2,' and 'Pro3,' for students who watch TV between '5-8 hours' (refer variable 'TVwatch').

Mention any two Benefits of Transforming Data

Mention any two Utilities of a Control Chart.

Identify an Interval and a nominal variable.

What is 'd. f'?

State two properties of a skewed curve?

Explain 'b' error.

What is a Poisson Process?

Part-B

Answer any FOUR questions.   **(4 x 10 = 40 marks)**

(Use the enclosed Table: 'Academic Study Project' to answer Qs. 15 and 16)

11)   The Contingency Table below summarises the results obtained in a study conducted on the performance of three brands of Bikes among selected users in Chennai. Test appropriate Hypothesis.

Performance	BIKE Brands			
(Mileage per litre)	**A**	**B**	**C**	Total
less than **10**	11	13	12	36
10 and above	39	47	63	149
Total	50	60	75	185

(Table Values of χ^2: for 2 d. f. = 5.99; and 9.21, at 5%, and 1% sig. levels, respectively.)

12) The simple correlation coefficients between 'cleanliness' (X1), 'no. of tourists' (X2), and 'good food' (X3), are r12 = 0.69, r13 = 0.56, and r23 = 0.87. Calculate partial correlation coefficient r12.3, and R1.23.

13) Explain Coefficient of Variation, using an example.

14) The following are the numbers of hours which 10 School students studied for an examination and the scores they obtained:

No. of hours Studied (x)	11	8	14	16	13	8	19	16	6	9
Score (y)	64	52	87	80	78	62	97	93	41	64

Calculate Rank correlation; and test at 0.05 level of significance.

15.A) Develop frequency Tables for the variables 'AGECAT', 'TVwatch' and 'GoodEco.' (6 marks)

b) Explain 'Moments'. (4 marks)

16. Combine the three variables 'Pro1' and 'Pro2,' and 'Pro3,' and assign it a new variable code and label, 'StudyPrep,' and 'Being Prepared for Studies,' respectively. Check for any association between the variables 'StudyPrep' and 'Proactive Home' for the 'Post Graduate' students (refer variable 'EDUC').

17. The following are a random list of match scores for three IPL cricket teams, played currently.

First IPL Team: 339, 290, 333, 260, 321

Second IPL Team: 405, 320, 344, 229, 278,

Third IPL Team: 380, 199, 250, 381, 170, 260, 230

Use the Krushkal Wallis or H test, at the 0.05 level of significance to test the null hypothesis that the three Teams are equally effective.

Part-C

Answer any TWO questions in about four pages each.   **(2 x 20 = 40 marks**

(Use the enclosed Table: 'Academic Study Project' to answer Qs. **18**)

(18) Calculate the cause effect relationship between 'ProacHom' (Dependent) and 'GoodEco'. Report the R^2 value. What is the 'ProacHom' score for 'GoodEco' values of 3 ? Interpret these results.

(19) Calculate the seasonal indices by the ratio to the Moving average method (ADDITIVE) from the following temperature data related to a hill district in Tamilnadu.

Quarterly Temperature Data for 5 Years

Year	Quarters			
	I	II	III	IV
2011	27	26	27	31
2012	29	28	29	31
2013	30	28	31	32
2014	32	30	30	33
2015	33	31	24	27

(20) a. The incidence of young kids in Chennai affected by a Virus Fever is 75%. What is the probability that out of 7 children in your neighbourhood, 3 or more will contract the disease?

   b. Answer any **ONE** of the following: a) What are the key differences between the 2-tailed and 1-tailed tests of hypothesis? b) Non-parametric tests

(21) The following productivity data relates to the AGE CATEGORIES of I.T employees in three different ZONES in a city. Find using 2 way Anova, whether there are differences in COST SAVINGS among the I.T workers, as well as for Zonal type.

Cost Savings (in '000s) Among AGE Categories of Employees, and City Zones

City Zones	Age Categories of I.T. Employees			
	<20	20-30	30-40	40+
Zone1	200	230	250	350
Zone2	190	270	300	270
Zone3	240	150	145	180

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