LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

M.Com. DEGREE EXAMINATION – COMMERCE

FIRST SEMESTER – APRIL 2017

CO 1812- ADVANCED BUSINESS STATISTICS

Date: 03-05-2017   Dept. No.   Max. : 100 Marks
Time: 09:00-12:00

Part-A   (10 x 2 marks)=20 marks

Answer ALL questions. (Refer the Table: 'Success Factors Survey' to answer Qs.1, 2, 3, & 4)

1. Identify one ORDINAL, and a NOMINAL variable.

2. What is the 'range' for the variable 'SLEEPTIM?

3. Calculate the Mean value for the variable 'EMOTMAT' for III-B Com' students (refer variable 'P2Posit').

4. Combine 'SUCCESS1' and 'SUCCESS2' for 'I-BCom' respondents (refer variable 'p2Posit').

5. Give an example of an Alternate-Hypothesis.

6. Explain intersection of sets.

7. What is Coefficient Skewness?

8. What is a t-distribution?

9. Explain β error.

10. How are 'Missing values' handled in a survey?

Part-B   (4 x 10 marks)= 40 marks

Answer any FOUR questions. (Refer 'Success Factors Survey' table to answer Qs.11 & 12)

11. a) Develop frequency Tables for the variables 'SUCCESS3' and 'SUCCESS4.'

    b) Explain the importance of a Random Sample in a Survey.

12. Check for any association between the variables 'MathInt' and 'plAge' for both the 'I-B-Com' and 'IIBCom' categories together (refer variable 'p2Posit').

13. a) The past records of a factory using quality control methods show that on the average 5 articles produced are defective out of a batch of 200. What is the maximum number of defective articles likely to be encountered in the batch of 500, when the   production process is in a state of control.

b)A wholesaler of Kinoor apples claim that only 5 % of the APPLES supplied by him are defective. A random sample of 700 Oranges contained 35 defectives. Test the claim of the wholesaler.

14. A number of STUDENTS in a popular college were selected at random to investigate their Music Preferences . The patronage for four Indian cuisines, were verified across three Educational categories. The results of the survey are shown below.
Using Chi square, Test the hypothesis (level of significance of 0.05) that the choice of Music is independent of Educational (Degree) Type.

EDUCATIONAL CATEGORY VS. MUSIC PREFERENCES			
MUSIC PREFERENCE	DEGREE TYPE		
	UG	*PG*	PG *PLUS*
INDIAN POP	48	58	25
TAMIL POP	15	8	39
WESTERN POP	30	45	28
RAP	3	29	69

15. The occurrence of failure in the Accounting and Finance practical exams, is 20%. What is the probability that out of 6 students, 4 or more students would pass?

16. a) Explain 'Control Charts' and 'Six Sigma'.

b)Differentiate between 2-tailed and. 1-tailed tests of hypothesis.

17. a) On the basis of observations made on 30 Tulasi Plants, the total correlation of the yield of Tulasi leaves (X1), amount of seeds (X2); and the amount of medicinal parts (X3) are found to be: 1) r12 = 0.75; r13 = 0.55; r23 = 0.65. Comment on the partial correlation between yield of Tulasi Leaves, and the quantum of seeds, eliminating the effect of medicinal parts.

b) Explain zero order, first order, and second order coefficients

Part-C   (2 x 20 marks)=40 marks

Answer any TWO questions. (Refer 'Success Factors Survey' table to answer Qs.18)

18. Calculate the cause-effect relationship between 'EmoMat' (dependent) and. 'SLEEPTIM' variables for the II-B Com and III BCom students. Report the R2 value. What is the 'EmoMat' score for 'SLEEPTIM' values of 250 and 700?

19. The details of various levels of Advertising recorded in three zones in Chennai city are given below. Are there significant differences in Zonal Profits / and Advertisement levels used in the city?

Year	I Quarter	II Quarter	III Quarter	IV Quarter
2008	68	62	61	63
2009	65	58	56	61
2010	68	63	63	67
2011	70	59	56	62
2012	60	55	51	58

Test appropriate hypotheses using F-test (ask for statistical Tables from your invigilators)

20. Calculate seasonal indices by the Ratio to Moving Average method.

Year	I Quarter	II Quarter	III Quarter	IV Quarter
2010	45	39	38	40
2011	42	35	33	38
2012	45	40	40	44
2013	47	36	33	39
2014	37	32	28	35

21. Answer any **TWO** ;   a) Utility of a Histogram and an Ogive;

b) Important tips to be keptin mind while conducting a survey;

c) Transformation of data. Benefits?

d) Properties of a normal distribution curve and Significance Tests?

SUCCESS FACTORS SURVEY

Case no.	P1Age	Sleepti m	P2Posit	SUCCESS 1	SUCCESS 2	SUCCESS 3	SUCCESS 4	MATHIN T	EMOTM AT
1	21	420	1	4	5	3	3	12	6
2	22	390	3	2	4	4	3	13	7
3	19	390	2	4	5	3	4	12	14
4	21	420	2	3	3	3	4	14	13
5	19	300	1	4	5	4	5	15	8
6	22	330	3	2	4	5	5	13	12
7	23	480	1	3	4	4	3	12	13
8	21	390	3	4	3	3	2	13	9
9	22	480	2	5	2	2	3	14	8
10	20	390	3	3	3	4	3	15	15
11	20	450	2	5	4	3	2	13	7
12	22	480	1	4	5	2	3	9	10
13	21	330	2	2	5	4	5	12	14
14	24	420	1	4	3	3	4	13	12
15	20	360	3	3	4	5	5	9	9
	VARIABLE DETAILS								
	Age in years	Sleep time (in mins.)	Present Position	Success Factor1	Success Factor2	Success Factor3	Success Factor4	Interest in Mathem atics	Emotion al Maturity
	In yrs	In minutes	1=1st B. Com; 2=2nd B.Com; 3rd B. Com.	5=Strongly Agree; 4=Agree ....to 1 = Strongly Dis agree				Scale / Interval Variables	

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