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Name:

Reg. No.

FIRST SEMESTER M.Com. DEGREE EXAMINATION, DECEMBER 2017
(Regular/Supplementary/Improvement)
(CUCSS-PG)

CC15 PMC1 C02 - QUANTITATIVE TECHNIQUES FOR BUSINESS DECISIONS

(2015 Admission onwards)

Time: Three hours

Maximum: 36 Weightage

PART-A

Answer *all* questions. Each question carries 1 weightage

1. Distinguish between *One tailed Test* and *Two tailed Test*
2. What do you mean by Point Estimation?
3. What is the purpose of preparing Control Charts?
4. What do you mean by *Null Hypothesis*?
5. Explain *Sign Test*
6. What do you mean by *Degree of freedom*?

(6 x 1 = 6 Weightage)

PART-B

Answer *any six* questions. Each question carries 3 weightage

7. Explain how Chi-square test can be used as a test of goodness of fit.
8. Explain how a t-test is applied to know whether a training programme is useful to increase productivity of workers?
9. Explain the main features of SPSS.
10. A teacher wants to estimate the proportion of smokers among his students. What size of a sample should he select so as to have the proportion of smokers not to exceed by 5% at 95% level of confidence? It is believed from past records that the proportion of smokers in the same age group is 20%.
11. Before restriction on bar hotels, 100 out of a sample of 500 men were found to be non-drinkers. After permanent closure of bars, 200 out of a sample of 600 men were found to be non-drinkers. Using standard error of proportion, state whether the permanent closure of bars was effective to decrease the alcohol consumption habit of men.
12. An aptitude test was conducted among post graduate students of a college. Based on the following result, do you think that performance of M.Sc. students is better, compared to the performance of M.A. students?

Turn over

Class	No. of students	Mean Marks	S.D.
M.Sc.	12	78	6
M.A.	15	74	8

13. Eight students are selected at random from a class and their marks in Physics and Chemistry are given below.

Class No.	1	2	3	4	5	6	7	8
Physics	31	45	38	43	50	49	15	26
Chemistry	43	41	39	35	49	33	31	33

Can it be concluded that the mean marks obtained in these two subjects are significantly different? Also determine the 95% confidence interval for the true mean difference.

14. A certain drug is claimed to be effective in curing cold. In an experiment on 200 people with colds, half of them were given the drug and half of them given sugar pills. The patients' reactions were recorded in the following table.

	Helped	Harmed	No effect	Total
Drug	50	20	30	100
Sugar pills	40	30	30	100
Total	90	50	60	200

On the basis of this data, can it be concluded that there is significant difference in the effect of the drug and sugar pills?

(6 x 3 = 18 Weightage)

PART-C

Answer **any two** questions. Each question carries 6 weightage

15. The following table shows the summary of marks scored by 100 students in a class.

Marks Obtained	No. of students
Less than 40	30
Between 40 and 50	33
Above 50	37
Total	100

Find the average and standard deviation of marks assuming the distribution is normal.

16. The following are the sales details of a new product made by 4 salesmen A,B,C and D in 3 districts in a year. The figures are given in the following table.

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Districts	A	B	C	D	Total (Districts)
Thrissur	360	360	210	350	1280
Ernakulam	280	290	310	320	1200
Kottayam	260	280	290	290	1120
Total (Salesmen)	900	930	810	960	3600

State whether there is significant difference in the sales recorded (a) in 3 different districts and (b) by 4 different salesmen.

17. The following table gives the inspection data relating to 10 samples of 100 items each, concerning the production of bottle corks.

Sample No.	1	2	3	4	5	6	7	8	9	10
Size	100	100	100	100	100	100	100	100	100	100
Number of defectives	5	3	3	6	5	6	8	10	10	4
Fraction of defective	0.05	0.03	0.03	0.06	0.05	0.06	0.08	0.10	0.10	0.04

Construct a p-chart and plot the control limits and the observation. Also state whether the process is under control or not.

(2 x 6 = 12 Weightage)

Turn over