

# M.Com. (Semester – I) Examination, January, 2021

## COC 122 : Business Statistics & Research Methodology (OA – 18A)

Duration: 2 Hours

Max Marks: 60

### Instructions:

1. This paper consists of Nine Questions carrying Equal marks.
2. Question No. 1 consists of 5 Compulsory Questions of 2 Marks Each.
3. Answer any 5 questions from Question 2, 3, 4, 5, 6, 7, 8 and 9.
4. Each question carries 10 marks. Figures to the right indicate marks.

1. a) State the conditions for a binomial experiment. 02  
b) Criterion validity Vs Discriminant Validity. 02  
c) The mean of a binomial distribution is 40 and standard deviation 6. Calculate n, p, and q. 02  
d) What is fallacy in research? 02  
e) When can Nonparametric tests be applied? 02

2. A state was divided into three areas: administrative district, urban district, and rural district. A survey of housing conditions was carried out and the following information was gathered: 10

There were 67,71,000 buildings of which 17,61,000 were in rural district. Of the buildings in urban district 40,64,000 were inhabited and 45,000 were under construction. In the administrative district 40,000 buildings were uninhabited and 5000 were under construction of the total of 6,16,000. The total buildings in the city that are under construction are 62,000 and those uninhabited are 4,49,000. Tabulate this information.

3. A marketing agency gives the following information about the age groups of the sample informants and their liking for a particular model of car which a company plans to introduce: 10

Choice	Age Group of Informants			Total
	Below 20	20-39	40-59	
Liked	125	420	60	605
Disliked	75	220	100	395
Total	200	640	160	1000

On the basis of above data, can it be concluded that the model appeal is independent of the age group of the informants? (At 5% significance level, when degrees of freedom = 2,  $\chi^2_{\text{critical}} = 5.99$ )

4. A company wants to assess the impact of R&D expenditure (Rs in 1000s) on its annual profit; (Rs in 1000's). The following table presents the information for the last eight years: 10

Year	R&D expenditure	Annual Profit
2013	9	45
2014	7	42



2015	5	41
2016	10	60
2017	4	30
2018	5	34
2019	3	25
2020	2	20

Estimate the regression equation and predict the annual profit for the year 2024 for an allocated sum of Rs 1,00,000 as R&D expenditure.

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5.

In a test given to two groups of students, the marks obtained are as follows:

First group	18	20	36	50	49	36	34	49	41
Second group	29	28	26	35	30	44	46		

At 5% level of significance, is there any difference between the mean marks obtained by the students of two groups? ( $v=14$ ,  $t_{0.05} 2.14$ )

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6.

Enumerate the various methods of sampling and describe two of them mentioning the situations where each one is to be used.

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7.

Discuss the various types of attitude measurement scales.

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8.

What do you understand by plagiarism? As a researcher how would you prevent plagiarism in your research report?

10

9.

Briefly explain the process of carrying out a successful research.

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