Exam. Code : 217601
Subject Code : 5548

M.Com. 1st Semester

STATISTICAL ANALYSIS FOR BUSINESS

Paper—MC-102

Time Allowed—Three Hours]   [Maximum Marks—60

Note :—Attempt **FIVE** questions selecting at least **ONE** question from each section and the **fifth** question may be attempted from any section. All questions carry equal marks.

SECTION—A

1. (a) A bag contains 10 white and 6 black balls. Four balls are drawn out one by one without replacement. What is the probability of getting balls of alternatively different colors ?   6

    (b) A bag contains 3 red and 7 black balls. Two balls are drawn at random without replacement. If the second selection is given to be red ball, what is the probability that the first ball is also red ball ?   6

2. (a) Find the probability that the value of an item drawn at random from a normal distribution with mean 20 and standard deviation 10 will be between (a) 10 and 15 (b) 15 and 25 :

Given z-values	0.5	1.0
Area under Normal Curve	0.1915	0.3413
Given z-values	1.5	2.0
Area under Normal Curve	0.4332	0.4772

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    (b) Fit a Poisson distribution to the following data :

No. of mistakes per page	0	1	2	3	4	Total
No. of pages	109	65	22	3	1	200

Given $e^{0.61} = 0.54$, $e^{0.061} = 0.94$ and $e^{6.1} = 0.0022$.

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SECTION—B

3. (a) Differentiate between Sampling and Non-sampling errors.   6

    (b) Discuss and compare the three sampling methods : cluster sampling, stratified sampling and systematic sampling.   6

4. (a) Discuss the various types of primary data collection methods.   6

(b) Explain why we need to draw random samples and how such samples are drawn. What are the properties of a (simple) random sample ? 6

SECTION—C

5. Differentiate between the following :

   (a) Type-I and Type-II Errors by providing suitable examples.

   (b) Null hypothesis and alternative hypothesis.

   2×6

6. Commerce Department, GNDU Amritsar is planning to launch a Post Graduate Programme in Retail Management. Please develop a questionnaire to know the perception of prospective students for this course.

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SECTION—D

7. (a) Find the Pearson's Correlation between the Aptitude Score and Productivity Index :

Aptitude Score	60	62	65	70	72
Productivity Index	68	60	62	80	85
Aptitude Score	48	53	73	65	
Productivity Index	40	52	62	60	

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   (b) Differentiate between the Partial Correlation and Multiple Correlation Coefficient. 5

8. The following table represents the number of units sold in five different areas by 4 salesmen. Is there a significant difference in the efficiency of these 4 salesmen ?

Area	A	B	C	D	Given F-table values at $\alpha = 5\%$	
					Degree of Freedom	F-value
I	80	100	95	70		
II	82	110	90	75	3, 16	3.24
III	88	105	100	82	3, 19	3.12
IV	85	115	105	88	4,16	3.00
V	75	90	80	65	16, 19	2.23

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