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22MBA14

First Semester MBA Degree Examination, June/July 2024
Statistics for Managers

Time: 3 hrs.

Max. Marks: 100

Note: 1. Answer any FOUR full questions from Q.No.1 to 7.
2. Q.No. 8 is compulsory.
3. M : Marks , L: Bloom's level , C: Course outcomes.
4. Use of statistical table is allowed.

			M	L	C
Q.1	a.	The arithmetic average of a series of 20 items has been computed as 400. While computing two values 450 and 360 have been taken as 540 and 630 respectively. Find the correct value of the mean.	3	L1	CO1
	b.	A coin was tossed 900 times and head appeared 490 times. Does the result support the hypothesis that the coin is unbiased? 5% level as significance @ two tail test is 1.96.	7	L2	CO4
	c.	Given the following values as X and Y: 	X	1	3	5	7	9
Y	15	18	21	23	22	 Find the equation of X on Y and the value of X when Y = 24.	10	L3	CO2
Q.2	a.	What is one tail and two tail test?	3	L1	CO3
	b.	Outline the characteristics of an average and explain in brief any 5 points.	7	L2	CO2
	c.	Sample of two types of electric bulbs were tested for length of life and the following data were obtained: 	Particular's	Type I	Type II
No. of samples	8	7
Mean of the samples	1134	1024
SD of the samples	35	40 | Test at 5% level, whether the difference in sample means is significant?	10	L3	CO4
Q.3	a.	Differentiate between correlation and regression.	3	L1	CO2
	b.	Compute 4 years moving averages from the following data: 	Year	2014	2015	2016	2017	2018	2019
Pdn	75	85	98	90	95	108
Year	2020	2021	2022	2023		
Pdn	124	140	150	160				7	L1	CO2

	c.	The distribution of typing mistakes committed by a typist is given below. Assuming a Poisson mode, find the expected frequencies.	10	L2	CO2

Mistakes per page	0	1	2	3	4
No. of pages	40	35	15	6	4

Q.4	a.	What is null and alternative hypothesis?	3	L1	CO3
	b.	From the following data relating to the two series, find out the coefficient of variation in a combined manner.	7	L2	CO2

Factors	Series A	Series B
N	40	60
ΣX	75	125
ΣX^2	260	340

	c.	Find the trend line equation and obtain the trend values for the following data using the method of the least square, also forecast for 2025.	10	L3	CO2

Year	2016	2017	2018	2019	2020	2021	2022	2023
Earning in '000' Rs.	38	40	65	72	69	60	87	95

Q.5	a.	What is the difference between sample and population?	3	L1	CO1
	b.	Ten students have obtained the following marks in accounts and statistics. Calculate the rank co-efficient of correlation.	7	L2	CO2

Roll no:	1	2	3	4	5	6	7
A/C's:	60	56	25	90	35	14	52
Statistics:	42	34	56	35	40	50	45
Roll no:	8	9	10				
A/C's:	27	54	72				
Statistics:	60	58	36				

	c.	From the data given below, find: i) Which firm pays higher wages on an average? ii) Which firm has a more consistent wage structure?	10	L3	CO2

Wages in Rs.	AB firm	CD firm
5-7	10	25
7-9	30	15
9-11	20	20
11-13	40	5
13-15	10	10

Q.6	a.	Explain the term time series.	3	L1	CO2
	b.	Write about mean, median and mode in detail.	7	L2	CO2

	c.	Compute the coefficient of correlation between the sales and advertisement in '000' of rupees from the following data by using Karl Pearson's direct method.	10	L3	CO2

Sales :	1	2	3	4	5
Advertisement :	6	7	8	9	10

Q.7	a.	What is the objective to compute coefficient of variation?	3	L1	CO2
	b.	A company is to appoint a person as its managing director, who must be an M.Com, MBA and I.A.S, the probability of which are one in twenty five, one in forty and one in fifty respectively. Find the probability of getting such a person to be appointed by the company.	7	L2	CO3
	c.	Calculate the three yearly and five yearly moving averages for the following time series:	10	L3	CO2

Year :	2013	2014	2015	2016	2017
Pdn :	500	540	550	530	520
Year :	2018	2019	2020	2021	2022
Pdn :	560	600	640	620	610
Year :	2023				
Pdn :	640				

Q.8		**CASE STUDY (Compulsory)**	20	L3	CO4

The monthly income of 1000 employees are normally distributed around a mean of Rs.2500 with a standard deviation of Rs.250. Find the number of employees whose monthly income would be:

i) Between Rs.2000 and Rs.3000
ii) Less than Rs.2000
iii) More than Rs.3000
iv) More than 2250
v) Less than 2800.

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