CBCS SCHEME

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MBA104

First Semester MBA Degree Examination, June/July 2025
Business Statistics

Time: 3 hrs. Max. Marks: 100

*Notes: 1. Answer any **FOUR** full questions from Q.No. 1 to Q.No. 7*
2. Question No. 8 is compulsory.
3. M: Marks, L: Bloom's level, C: Course outcomes.

			M	L	C
Q.1	a.	Describe any three properties of a good Average.	3	L2	CO2
	b.	Sizes of land holdings of farmers in a district are given below. From these data calculate mean deviation and co-efficient of mean deviation from median Farm size (Acres): 5, 8, 10, 12, 15, 25, 50, 75 No of farmers: 24, 35, 42, 58, 63, 16, 9, 3	7	L3	CO2
	c.	The following distribution gives the distribution of hourly wage rate of 100 workers in a factory. Find arithmetic mean and Standard deviation Hourly wage rate: 100-150, 150-200, 200-250, 250-300, 300-350, 350-400 No of workers: 10, 21, 34, 21, 7, 7	10	L3	CO2
Q.2	a.	Explain the functions of statistics.	3	L2	CO1
	b.	The following table gives the distribution of marks secured by 60 students in an examination. Calculate a) Harmonic mean and b) Geometric mean Marks: 0-10, 10-20, 20-30, 30-40, 40-50 No of students: 5, 7, 15, 25, 8	7	L3	CO2
	c.	The following data relates to sale of used cars in a city for the period 2017-2023. Predict the sales for the year 2025 using the least square method. Year: 2017, 2018, 2019, 2020, 2021, 2022, 2023 Sales: 214, 320, 305, 298, 360, 450, 340	10	L3	CO4
Q.3	a.	Distinguish between correlation and regression analysis.	3	L2	CO3
	b.	Calculate spearman rank correlation for the marks awarded by the two judges in a painting competition for 8 participants. Participants: A, B, C, D, E, F, G, H Judge 1: 18, 28, 35, 44, 35, 26, 37, 48 Judge 2: 83, 51, 34, 43, 45, 28, 46, 47	7	L3	CO3
	c.	Calculate 3rd quartile, 6th decile and 20th percentile from the following data : 22, 26, 14, 30, 18, 11, 35, 41, 12, 32	10	L3	CO2

Q.4	a.	Define hypothesis.	3	L1	CO4
	b.	Discuss the components of time series.	7	L2	CO2
	c.	Calculate Karl Pearson's co-efficient of correlation for the data given below taking 66 and 63 as assumed means of X and Y respectively Height (X): 60, 62, 64, 66, 68, 70, 72 Weight (Y): 61, 63, 63, 63, 64, 65, 67	10	L3	CO3
Q.5	a.	State any three limitations of Range.	3	L2	CO2
	b.	Find the missing frequency in the following distribution if N= 100 And Median is 32 Marks: 0 – 10, 10 – 20, 20 – 30, 30 – 40, 40 – 50, 50 – 60, Total No. of students: 10, ?, 25, 30, ?, 10, 100	7	L3	CO2
	c.	The following data relates to annual sales of a company. Calculate (i) three Yearly, (ii) 4 yearly moving averages. Year: 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020 Sales: 42, 50, 52, 49, 53, 55, 51, 57, 60, 65, 62	10	L3	CO4
Q.6	a.	Define Binomial Distribution. Mention the application of Binomial Distribution.	3	L2	CO3
	b.	The average percentage of defectives in a product manufactured by a company is 30%. Out 10 products manufactured , what is the probability that a) Exactly 2 are defective. b) None are defective.	7	L3	CO3
	c.	A typist commits the following mistakes per page in typing 100 pages. Poisson Distribution Fit a Poisson distribution and calculate the theoretical frequencies. Mistakes per page(X): 0, 1, 2, 3, 4, 5, 6 Frequency (f): 48, 27, 12, 7, 4, 1, 1	10	L3	CO3
Q.7	a.	Differentiate between one tailed and two tailed test.	3	L3	CO4
	b.	The results of a examination held by a university is summarized as below. Gender: Boys, Girls Mean: 72, 75 Standard Deviation: 8, 6 No of students: 32, 36 Test the hypothesis that the mean score of girls are better than boys (use 5% level of significance.	7	L5	CO4

	c.	The mother of 180 adolescents (some of them were graduates and others non graduates) were asked whether they agree or disagree on a certain aspect of adolescent behavior. Use Chi-square test at 5 percent significance level to test the association between the attitude and educational qualification. Agree / Disagree / Total Graduate mother: 30 / 50 / 80 Non graduate mother: 70 / 30 / 100 Total: 100 / 80 / 180	10	L5	CO4
		Compulsory Questions			
Q.8	a.	A research company summarized the results of advertising expenditure and sales results as follows: **Particulars** / **Advertising exp.(X) (Rs. In Crore)** / **Sales(Y) (Rs. In Crore)** Average: 20 / 200 Std.deviation: 18 / 17 Correlation coefficient: 0.6 Obtain: (i) Two regression equations (ii) Predict the most probable sales when the advertising expenditure is Rs.8 crores (iii) Predict the amount of advertising expenditure when the sales is Rs. 190 crores.	10	L4	CO2
	b.	The scores of two batsmen Aarush and Vidath in 10 innings during a certain season are given below. Ascertain who is more consistent in scoring runs and a better player. Aarush: 32, 28, 47, 63, 71, 39, 10, 60, 96, 14 Vidath: 19, 31, 48, 83, 67, 90, 10, 62, 40, 80	10	L4	CO2

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