School of Business
Backlog Examination, June 2023
[Programme: BBA] [Semester: II] [Batch:]

Course Title: Business Statistics	Max Marks: 100
Course Code: BBAD1008	Time: 3 Hrs.

Instructions:	1. *All questions are compulsory.*
	2. *Assume missing data suitably, if any.*

		K Level	COs	Marks
	SECTION-A (15 Marks) 5 Marks each			
1.	Explain the measure of central tendencey	K2	CO1	5
2.	Consider the following data and calculate the standard deviation to two decimal places. −4, 25, −4, 11, 19, 4	K3	CO1	5
3.	Define a t-test and explain its purpose in statistical analysis.	K2	CO4	5
	SECTION-B (40 Marks) 10 Marks each			
4.	A researcher wants to examine the relationship between the amount of sleep and the productivity level of a group of 10 employees. The data collected is as follows: Amount of sleep (hours): [7, 6, 8, 5, 6, 7, 5, 4, 8, 6] Productivity level (on a scale of 1-10): [8, 6, 9, 4, 7, 8, 5, 3, 9, 6] Calculate the Spearman rank correlation coefficient between the amount of sleep and the productivity level. Interpret the correlation coefficient in terms of the strength and direction of the relationship.	K3	CO3	10
5.	In a bolt factory, machine A, B, C manufactures 25%, 35% and 40% of the total output. Of their output 5%, 4% and 2% are defective bolts. A bolt is drawn from random from the product and is found to be defective. Examine the probability that it is from machine A?	K4	CO2	10
6.	Distinguish various sampling techniques for data collection with suitable examples.	K4	CO4	10
7.	Examine the Mean deviation from median <table><tr><td>Size</td><td>6</td><td>7</td><td>8</td><td>9</td><td>10</td><td>11</td><td>12</td></tr><tr><td>Frequency</td><td>3</td><td>6</td><td>9</td><td>13</td><td>8</td><td>5</td><td>4</td></tr></table> OR Explain index numbers, its use and purpose with suitable example	K4	CO1/ CO5	10
	SECTION-C (45 Marks) 15 Marks each			
8.	A researcher wants to examine the relationship between the number of hours studied and the exam scores of a group of 20 students. The data collected is as follows: Number of hours studied: [5, 7, 3, 6, 8, 4, 2, 9] Exam scores: [65, 70, 55, 68, 72, 60, 50, 75]	K3	CO3	15

	Calculate the Karl Pearson correlation coefficient between the number of hours studied and the exam scores. Interpret the correlation coefficient in terms of the strength and direction of the relationship.			

9.	Discuss the advantage and disadvantage of following measure of dispersions:
	   a) Range
	   b) Mean Deviation
	   c) Standard Deviation
		K5	CO1	15

10	Perform a simple linear regression analysis to estimate the exam scores based on the number of hours studied. The data collected is as follows: Number of hours studied: [4, 6, 3, 5, 7, 2] Exam scores: [65, 70, 55, 68, 72, 60] OR Discuss time series? Explain its components and characteristics. Also, compare the different types of trends observed in time series analysis.	K5	CO5	15