**Name**: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Date**: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Unit 9 and 10 Quiz

Answer the following questions. **Show your work (or explain your calculations)**.

1. Table

   Description automatically generatedWe took a random sample of eleven Biology students and recorded the following values for the percentage grade on Test 1 and the percentage grade on the Midterm exam. The data is given below.
2. Calculate and interpret the correlation between Grade on Test 1 and Grade on the Midterm Exam.
3. Determine the linear regression equation to predict Midterm Exam Grades based on the Test 1 Grades.
4. Use your equation from part (b) to predict the Midterm Exam Grade for a student who received an 85 on Test 1.
5. Sales ($) for a sports store for several months are shown below. Use the data to forecast the sales for months 5, 6, 7 and 8 using a 4-month Moving Average.

|  |  |  |
| --- | --- | --- |
| **Month** | **Sales (Actual)** | **Forecasted Sales (4 month Moving Average)** |
| 1 | 12,300 |  |
| 2 | 9,090 |  |
| 3 | 8,890 |  |
| 4 | 11,400 |  |
| 5 | 20,100 |  |
| 6 | 17,810 |  |
| 7 | 14,630 |  |
| 8 | 13,000 |  |

1. Sales for a particular product at a beauty store have gone done recently (data is shown in the table below). Initially they predicted to have $640 in the first month. Use exponential smoothing with a weight of 𝛼 = 0.25 to forecast sales for months 2 through 5.

|  |  |  |
| --- | --- | --- |
| **Month** | **Sales (Actual)** | **Forecasted Sales ()** |
| 1 | 600 | 640 (Initial Prediction) |
| 2 | 550 |  |
| 3 | 510 |  |
| 4 | 405 |  |
| 5 | 380 |  |