King Fahd University of Petroleum & Minerals
Department of Mathematics & Statistics
STAT-212-Term111-I
Quiz #4

Name: ID: Section Serial

A financier whose specialty is investing in movie productions has observed that, in general, movies with "big-name" stars seem to generate more revenue than those movies whose stars are less well known. To examine his belief he records the gross revenue and the payment (in $ millions) given to the two highest-paid performers in the movie for ten recently released movies.

Movie	1	2	3	4	5	6	7	8	9	10
Cost of Two Highest Paid Performers	5.3	7.2	1.3	1.8	3.5	2.6	8	2.4	4.5	6.7
Gross Revenue	48	65	18	20	31	26	73	23	39	58

You may need the following information's $\sum x = 43.3,\ \sum y = 401$

$\sum (x_i - \bar{x})^2 = 15.281,\ \sum (y_i - \bar{y})^2 = 3552.9,\ \sum (x_i - \bar{x})(y_i - \bar{y}) = 424.87$

1. (5 pts) Determine the least square regression line estimate. Interpret the value of the slop of the regression estimate. Predicted the gross revenue of a movie whose top two stars earn $5.0 million.

2. (5 pts) Determine the standard error of estimate and describe what this statistic tells you about the regression line.

3. (7 pts) Conduct a test of the population coefficient of correlation to determine at the 5% significance level whether a linear relationship exists between payment to the two highest-paid performers and gross revenue.

4. (3 pts) Construct a 95% confidence interval for the true regression slope and interpret this interval estimate. Do you think that there is a significant relationship between payment to the two highest-paid performers and gross revenue? Explain.