King Fahd University of Petroleum & Minerals
Department of Mathematics & Statistics
STAT-319-Term122
Quiz #4

Name: ID: Serial:

The owner of a gasoline station **A** wants to study gasoline purchasing habits by all motorists at his station. He decides to focus on two variables:

- The amount of gasoline purchased by motorists.
- Whether the motorists purchased premium – grade gasoline or not.

The results from a sample of 29 motorists during a certain week are as follows:

- Amount purchased: the mean = 8.9 gallons and the standard deviation = 2.45 gallons
- 11 motorists purchased premium – grade gasoline.

a. Is there evidence that the population mean purchase was different from 10 gallons?

b. Is there evidence that fewer than 20% of all motorists at the station purchased premium – grade gasoline?

The owner of a competing a gasoline station **B** wants to conduct a similar survey in his a gasoline station. He decides to sample 62 motorists and the results are

- Amount purchased: the mean = 11.3 gallons and the standard deviation = 3.1 gallons
- 11 motorists purchased premium – grade gasoline.

c. Do you think that there is no difference between the percentages of the motorists who purchased premium – grade gasoline? Test using the p – value approach

d. Do you think that there is a difference in the mean of the amount purchased in both gasoline stations? What conclusion can you draw about the mean amount purchased in station **B** compared to the mean purchased spent in station **A**?