

Chemical Engineering 201
Fall 2001
Exam Five

Name _____

Problem # 1 _____

Problem # 2 _____

Problem # 3 _____

Problem # 4 _____

Total _____

Problem One:

One hundred grams per hour of nitric acid at 25°C is added to 50 milliliters of hexane per hour that is at 60°C in a well insulated vessel. What is the temperature of the mixture as it leaves the mixer?

Problem Two:

How much air needs to be fed to an ethane burner if 200 moles of ethane are burned to completion with no excess air? What would your answer be if only half of the ethane reacted?

Problem Three:

A stream of nitrogen at 4 atm and 100°C has benzene in it with a relative saturation of 20 percent. If this stream is cooled until half of the benzene is condensed, what is the final temperature?

Problem Four:

How much heat would need to be added to heat 45 kg/hr of liquid water at 5 bar and 50°C to turn it into steam at 5 bar and 550°C?