

Name _____

Anaerobic Micr 414/514
Practice problems
Due Tues. Sept. 17

Please answer at the bottom of this sheet, back of this sheet, and on a separate sheet of paper (if needed) and clearly show your work including units.

1. You want to make 100 ml of a 50 mM solution of $(\text{NH}_4)_2\text{SO}_4$. Molecular weight of $(\text{NH}_4)_2\text{SO}_4$ is 132.14. How much $(\text{NH}_4)_2\text{SO}_4$ do you add?
2. What is the molarity of NH_4^+ in the solution above (assume complete dissociation of the molecule)?
3. How many millimoles of $(\text{NH}_4)_2\text{SO}_4$ are in the 100 ml of solution you made in question 1 above?
4. If I take 5 ml from the solution made in #1 above and add it to 45 ml of basal salts solution with glucose to make a medium for bacterial growth, what is the concentration of $(\text{NH}_4)_2\text{SO}_4$ in the medium?
5. I want to make a stock solution of glucose, autoclave it separately so I don't get caramelization, and then add this to a sterile basal salts medium to grow my bacteria. I want to add 5 ml of sterile glucose to 95 ml of sterile basal salts medium to make 100 ml of complete medium. I want the final concentration of glucose to be 10 mM in the medium. What concentration should my stock solution be?
6. I have a 1 M stock solution of sterile lactose. I am making a medium which requires 10 mM lactose. How much of the lactose stock solution would I add to make 100 ml of medium?

For the scenario above, how much of the basal salt solution would I dispense into each flask in order to have 100 ml total after I add my lactose stock?