CATS Spring 18 - Osmosis

Students learning this concept must 1) assess the difference in solution concentrations to determine which one is higher and will draw water (numbers) 2) identify which way water will move 3) determine the net effect on the cell and which is beneficial for the cell and why 4) apply the terms to describe these conditions (hypertonic, isotonic, hypotonic)

Questions 5a and 5b were on the take home. These questions reflect the practice in lecture and lab HW.

5. 3pts. a) A bacterial cell has a solute concentration of 0.90%. Which of the following levels of solute concentration would the cell prefer to have as an external environment?

a. a 0.90% solution of sucrose

b. a 0.55% solution of albumin (protein)

c. a 1.05% solution of salt

d. a 1.80% solution of protein and salt

b) WHY? Provide a COMPLETE explanation concerning your choice.

42a and 42b were on the in class proctored exam.

42. 3pts. Bacteria prefer to live in a (a) environment.

  (a) Circle the correct term: hypertonic hypotonic isotonic

 (b) Explain the effect of this condition on bacteria cells and one way the condition benefits the cells:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Fall 17 | 5a | 42a | 5b - 2pts | 42b - 2pts |
| # of students with correct answer | 41 | 45 | 4 | 5 |
| total # students \* | 58 | 60 | 58 | 60 |
| % | 70.7 | 75.0 | 6.9 | 8.3 |
|  |  |  |  |  |
| Spring 18 | 5a | 42a | 5b - 2pts | 42b - 2pts |
| # of students with correct answer | 28 | 29 | 5 | 4 |
| total # students | 52 | 52 | 52 | 52 |
| % | 53.8 | 55.8 | 9.6 | 7.7 |
|  |  |  |  |  |
| \*two students did not complete take home | | |  |  |

Results were dismal. In addition to revising my instructional methods, I plan to work with 156/181 instructors to come up with a shared “concept first” approach to osmosis. If the subject is approached the same way in the pre-req courses students should be more successful when seeing it in 205.