**The Bacterial Flagellum**

Name and date (3 pts):

KEEP THE QUESTIONS AND THE SAME NUMBERING, or you will have points deducted.

(17 questions, 2 points each, 34 points total)

Watch “Amazing Flagellum” <https://www.youtube.com/watch?v=MNR48hUd-Hw> and answer the questions.

0.00-1:15 in video

1. The molecular machine which Michael Behe made famous is called the F\_\_\_\_\_\_\_\_ M\_\_\_\_\_\_\_\_\_
2. Its whip-like tail functions as a P\_\_\_\_\_\_\_\_\_\_\_
3. It moves the bacterium through liquid so that it can do what?
4. List the protein parts in this nano-machine: R \_\_\_\_\_\_\_\_\_\_, S\_\_\_\_\_\_\_\_\_\_\_\_, D\_\_\_\_\_\_\_\_\_\_\_, U\_\_\_\_\_\_\_\_\_\_\_\_, Bu\_\_\_\_\_\_\_\_\_\_\_, Be\_\_\_\_\_\_\_\_\_\_\_\_, and a tail that functions like a P\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
5. How fast can it spin? Up to \_\_\_\_\_\_\_\_\_\_\_\_\_ RPM’s
6. It can stop and completely reverse direction within \_\_\_\_\_\_\_\_\_\_ of a turn.

1:15-1:55 in video

1. This nano-machine is \_\_\_\_\_\_\_ nm (nanometers) in size
2. The “model bacterial systems” which we use to study this nano-machine are E\_\_\_\_\_\_\_\_\_\_\_ and S\_\_\_\_\_\_\_\_\_\_\_\_
3. Bacteria are propelled at about \_\_\_\_\_\_\_\_\_\_\_\_ lengths per second through water.
4. This speed would translate to humans as \_\_\_\_\_\_\_\_\_\_ feet per second

1:55-2:30 in video

1. It is “hard wired” so the bacteria can sense changes in the S\_\_\_\_\_\_\_\_\_ G\_\_\_\_\_\_\_\_\_\_ (its food source)
2. If there is a “repellent” in the surrounding water, the signal transduction system will cause the bacterium to do what?
3. By highlighting these protein nano-machines in the cell, Dr. Behe has accomplished what? In your own words…..

Watch “What is Irreducible Complexity” <https://www.youtube.com/watch?v=0cN-aIXNQrc> and answer these questions

0.00-0:35 in video

1. Summarize Behe’s argument in this segment: “If you take away the propeller, or you take away the clamps that hold the motor, and so forth….” IN YOUR OWN WORDS, what is the argument he is making for Irreducible Complexity in the first 30-35 seconds of this video?

0:35-1:05 in video

1. Now summarize Dr. Behe again, IN YOUR OWN WORDS: What is his argument here? How does Darwin’s theory work, and why would this be a problem, according to Behe?

1:05-1:55 in video

1. Summarize the outboard motor analogy in your own words.

1:55-the end of video

1. Stephen Meyer is making the argument that you can’t just build a Bacterial Flagellum “one part at a time”. Why would the evolutionary process “terminate” long before it got built? Summarize Dr. Meyer’s argument in this segment.