**Microbe Mission Division B Exam**

*Scientists have made discoveries of intelligent life on Jupiter, with species mimicking those of Earth, with similar technologies. They call their microbes “Floxits”, “Broxits”, “Sixolits”, “Firiits”, “Oadicocuses.” Identify each microbe as one of our names of microbes from the following: virus, protist, bacteria, prion, and fungus.*

1. Floxits cause diseases similar to the bubonic plague and strep throat. Its only weakness is antibiotics.
2. Broxits have been featured in Jupiter’s TV series “Is your Beef Safe?” Broxits are infectious protein agents often smaller than Sixolits.
3. Siloxits are responsible for diseases such as the common cold, fever, and Hepatitis A.
4. Firiits are responsible for the common disease in which people’s toenails become discolored and infected. Jupiter’s residents, however, like one type of Firiit, the King Mushroom, their national dish.
5. Oadicocuses cause ringworm and malaria in the poorer parts of Jupiter where proper treatment is not available.

*The following are hypothetical questions. Choose the response that is the most accurate.*

1. Scientists have discovered a new medicine that will rid all bacteria and viruses from your body. Evaluate the idea.
	1. This is a good idea. All bacteria and viruses are bad or useless at best.
	2. This is a decent idea, though the medicine may get rid of some useful viruses.
	3. This is a somewhat bad idea, as there are many good microbes in our body.
	4. This is a very bad idea. Over 99% of microbes contribute to the quality of the human life.
	5. This is a horrible idea. All bacteria and viruses are great! People get diseases because of imbalances in their body and spirits, not microbes!
2. Which of the syntrophic model state about the origin of the cell nucleus?
	1. A symbiotic relationship between the prion and the virus created the nucleus-containing prokaryotic cell
	2. A symbiotic relationship between the prion and the virus created the nucleus-containing eukaryotic cell.
	3. A [symbiotic](http://en.wikipedia.org/wiki/Symbiosis) relationship between the [archaea](http://en.wikipedia.org/wiki/Archaea) and [bacteria](http://en.wikipedia.org/wiki/Bacteria) created the nucleus-containing eukaryotic cell.
	4. A symbiotic relationship between the fungus and protist created the nucleus-containing eukaryotic cell
	5. A symbiotic relationship between the algal-like protist and animal-like protist created the nucleus-containing eukaryotic cell.
3. Which of the following does a prokaryotic cell NEVER contain?
	1. “naked” DNA
	2. Flagellum
	3. Cell wall
	4. Ribosome
	5. Endoplasmic Reticulum
4. Which of the following correctly orders the following from largest to smallest?
	1. Eukaryotes, prokaryotes, viruses, proteins, small molecules, atoms
	2. Prokaryotes, viruses, eukaryotes, small molecules, proteins, atoms
	3. Atoms, small molecules, proteins, viruses, prokaryotes, eukaryotes
	4. Viruses, eukaryotes, prokaryotes, atoms, small molecules, proteins
	5. None of the above
5. Without microbes, which of the following foods can still exist?
	1. Cheese
	2. Dry sausages
	3. Olives
	4. Cabbage
	5. Bread

*Helga was observing a sample in a Petri dish. This is what it looks like under a microscope:*



*Helga created a table showing the growth of the microbes over time:*

|  |  |
| --- | --- |
| Time | Number of microbes |
| 0 minutes | 30 |
| 5 minutes | 150 |
| 10 minutes | 750 |
| 15 minutes | 3750 |

1. The following microscope picture above shows a sample of what?
	1. Diatoms
	2. Lichens
	3. Green algae
	4. Baker’s yeast
	5. Ciliates
2. If Helga constructed a graph of the information in the table, what would be the manipulated variable?
	1. Sample used
	2. Time
	3. Number of microbes
	4. Concentration
	5. Size
3. Is the data in the table an example of an *arithmetic sequence* or *geometric sequence*?
4. If the trend continues, how many microbes will there be in the Petri dish in 25 minutes? \_\_\_\_\_\_\_\_\_
5. What type of microbe is the sample in the microscope? \_\_\_\_\_\_\_\_\_\_\_

*Answer the following open ended questions about cells.*

1. Which cell part is located inside the nucleus and makes ribosomes? \_\_\_\_\_\_\_\_\_\_\_
2. The eukaryotic cell is composed of a cell membrane, cytoplasm, nucleus, and \_\_\_\_\_\_\_\_(which carry out cell functions)
3. Regulating cellular metabolism is a function of the \_\_\_\_\_\_\_\_.
4. Photosynthetic organisms use their cells to turn \_\_\_\_\_\_\_\_\_ into glucose.
5. Name 4 functions of the cell nucleus.
6. Approximately how many nanometers are in 1 foot?
	1. 254
	2. 25,400,000
	3. 365
	4. 1200000
	5. 3566
7. Name 5 food borne diseases. Include the name of the pathogen, the common food source, and the disease/symptoms. Also include how to prevent food borne diseases.