**Masters**

**Science**

**Entrance Practise Test**

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**Science Questions**

**Read the following scenario to answer Q 1-4 below**

Acid rain contains high levels of sulfuric acid and/or nitric acid. These acids form when sulfur dioxide and nitric oxide gases react chemically with oxygen and water in the atmosphere. Sulfur dioxide gas is produced when electric and industrial factories burn coal and oil fuels that contain sulfur. Nitric oxide is produced by car engines.

Acid rain can destroy fish and other water life, and it poses a threat to forests and farmlands. It can also affect people, causing serious injury to the moist surfaces on the eyes and to the membranes in the lungs.

**1**. Two gaseous pollutants involved in the production of acid rain are:

1. oxygen and water
2. coal and oil fuels
3. sulfuric acid and nitric acid
4. sulfur dioxide and nitric oxide
5. electric and industrial factories

**2.** Which of the activities listed below would contribute to acid rain?

1. Boiling water on a stove
2. Burning oil in a home furnace
3. Popping a helium filled balloon
4. Using an electric current to break down water into oxygen and hydrogen gas
5. Making a campfire with old branches and leaves

**3**. Acid rain can cause:

1. Nitric oxide emissions from car engines
2. The reduction of gaseous pollutants from all sources
3. High levels of industrial waste
4. The formation of sulfuric acid in the atmosphere
5. The destruction of plant life

**4**. Each of the following could result directly with a decrease of acid rain in an industrial city **except**:

1. An increase in the number of people walking or bicycling to work instead of driving
2. An increased use of sulfur free coal by industries that use coal as a power source
3. An efficient and well used public transportation system
4. An increase in public awareness of the dangers of being outside when acid rain is falling
5. An increased use of fuel efficient cares by people who must drive to work

**Candy Connection**

Mr. Smith wanted to know whether or not his students would do better on a quiz if he promised them candy. He went to the library and read several studies about the effect of giving food to lab animals. He found out that if animals were given food as a reward for doing something, they usually did better the more reward they were given. He guessed that the more candy that his students were promised; the better they would do on the quiz. He had all of his classes participate in the experiment. There were four groups in all. Each group had the same amount of boys and girls, they were all given the same quiz, they were all the same age, the same ability, and they were all from the same background. The first group was not promised any candy if they did well on the quiz. The second group was promised 1 candy bar if they did well on the quiz. The third group was promised 2 candy bars if they did well on the quiz. The forth group was promised 3 candy bars if they did well on the quiz. Group #1 got an average of 70% on the quiz. Group #2 got an average of 80% on the quiz. Group #3 got an average of 90% on the quiz. Group #4 got an average of 95% on the quiz. Mr. Lehman then decided that the more candy a group was promised, the better they did on quizzes. He then repeated the experiment with different students.

**Fill in the chart, based on the information above**

|  |  |  |
| --- | --- | --- |
| **Group** | **Number of Candy Promised** | **Test Average (%)** |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |

**Fill in the following information based on the scenario above**

Hypothesis: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

2. Dependent Variable: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

3. Independent Variable: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

4. Constants: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

5. Control Group:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

6. Experimental Group: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Graph the Dependant variable vs. the Independent Variable**

