**CGE Greenhouse Gas Inventory Workshop**

Name: .

**Waste**

1. For methane emissions from a closed solid waste disposal site, what best describes the likely physical rate of methane production over time?

(Choose one answer.)

1. Increasing over time
2. Stable
3. Decreasing over time
4. Zero
5. A lower degree of humidity will \_\_\_\_\_\_ methanogenic processes.

(Choose one answer.)

1. Accelerate
2. Decelerate
3. Stop
4. Have no influence on
5. Which of the following measures will generally have a higher numerical value for the same wastewater sample?

(Choose one answer.)

1. COD
2. BOD
3. (a) and (b) are equal
4. (a) and (b) have no numerical values
5. Complete the sentence: “The calculation method used for nitrous oxide emissions from wastewater handling ….”:

(Choose one answer.)

1. … is based on land use methods.”
2. … is based on agricultural calculations.”
3. … ignores all industrial inputs.”
4. … includes nitrous oxide from sludge incineration.”
5. In what case should waste incineration CO2 emissions be accounted for in the waste sector?

(Choose one answer.)

1. In all cases
2. For all non-biogenic materials
3. For all biogenic and non-biogenic materials
4. For non-biogenic materials not used for energy production
5. Nitrous oxide emissions from incineration will depend on:

(Choose one answer.)

1. Technology
2. Temperature
3. Both of the above
4. None of the above

**Waste**

1. Answer: (c). If no additional waste inputs are received by the landfill, the emissions are expected to decrease, in general, over time.
2. Answer: (b). Lower humidity will decelerate the activity of methanogenic bacteria due a reduction of their metabolic processes. Higher humidity, and frequent precipitation, generally enhance the effect of methanogenic bacteria, holding all other factors constant.
3. Answer: (a). The chemical oxygen demand (COD) of a wastewater sample is generally greater because it measures the chemical limit of the degree to which the sample will oxidize (given standard environmental conditions). The biological oxygen demand (BOD), in contrast, only measures the oxygen demanded by biochemical processes.
4. Answer: (b). In general, the same physical processes of denitrification and nitrification are at work in the generation of N2O emissions in the agriculture sector and in wastewater handling.
5. Answer: (d). CO2 emissions from the incineration of biogenic waste are generally treated as having no net impact on the anthropogenic flux to the atmosphere. Instead it is generally assumed that the carbon is simply cycled back into biogenic carbon in the following year’s plant growth. Any net additions of CO2 to the atmosphere should be accounted for in the LULUCF sector. Emissions of CO2 from non-biogenic materials, such as from fossil fuel derived products (e.g. plastics) should be accounted for in the waste sector unless energy is recovered in the combustion process. If such energy recovery takes place, the emissions should be accounted for in the energy sector.
6. Answer: (c). The type of combustion technologies used at the incineration facility, especially any emission control devices, will have a significant impact upon N2O emissions. Additionally, the formation of N2O is highly sensitive to the temperature in the combustion chamber temperature.