**PH 604**  **NAME**

**Homework 2**  RED ID\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

The purpose of this assignment is to better understand the toxicity and exposure of certain chemicals. You will learn to collect important chemical information commonly used in EH.

Please write your answers in the document. After completing this homework, please save the document with the following name: HW2\_YOUR Last Name\_Date and then upload it to CANVAS.

**1. Health Effect (**1 points):

Leukemia

Lung cancer

Skin cancer

Breast cancer

Intestinal cancer

Low birth weight

Preterm birth

Developmental effects - heart

Developmental effects - neurological

Low or absent sperm count

Other male reproductive toxicity

Autism

Birth defects (various)

Asthma

Wheeze

Type II diabetes

Hormonal alterations

Estrogenic effects

Kidney toxicity

Liver toxicity

Cataracts

Dermatitis

Skin conditions general

Chloracne (skin)

Immune system toxicity

Sensitization

Parkinsonism

Peripheral neurotoxicity

Neurological toxicity - other

Cholinesterase inhibition effects

Obesity

Heart attacks

Cardiotoxic effects

*(other, write in with permission of instructor)*

Please pick **ONE** health effect from the list below and write it here:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1) List **THREE** chemicals (CAN BE A MIXTURE in some cases, such as tobacco smoke) that are associated with your particular health effect: **THESE HAVE TO BE ENVIRONMENTAL CHEMICALS, NOT PHARMACEUTICALS** (meaning something like arsenic, not a medicine like Prozac). Put chemical or mixture name, and CAS or RN for the chemical. Go to pubchem https://pubchem.ncbi.nlm.nih.gov/ ( 0.5 points **each** of the three below)

1.1. Chemical Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

CAS or RN number \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1.2. Chemical Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

CAS or RN number \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1.3. Chemical Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

CAS or RN number \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**2)** Of the **THREE** chemicals you selected above, choose **ONE** and answer the following questions, using resources on pubchem https://pubchem.ncbi.nlm.nih.gov/ as well as ATSDR Tox guides , if any <https://www.atsdr.cdc.gov/toxguides/index.asp#B> and Tox Profiles <https://www.atsdr.cdc.gov/toxprofiledocs/index.html>

2.1 Selected chemical/ CAS # (0.5 points) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Other names (no more than 3 here) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

2.2 Of the **ONE** chemical selected, what is the Octanol-Water partition coefficient (log Kow) and if available, what is the Octanol-Air partition coefficient (LogKoa)? (0.5 points)

LogKow =

LogKoa =

2.3 What are the main uses for this chemical? (0.5 point)

**3)** Why and how are people exposed? What are the main exposure routes? (0.5 points)

3.1 If chemical is not in use today, is it still persistent in environment? (0.5 points)

3.2 Is there significant exposure in the workplace or community/environment or both? (0.5 points)

**4)** Please list any health EFFECTS of **CHRONIC** exposure to this chemical here - UNLESS you are in the UNUSUAL situation of your chemical presenting an ACUTE health effect (explain) (usually chronic exposures are the issue in environmental health, but not always - for example, carbon monoxide presents an acute health hazard (1 point)

4.1 As you may noticed, some chemicals have a lot information regarding their toxicity, based on the information you obtained, is this chemical a carcinogenic or teratogenic or mutagenic or a combination or none? (0.5 points)

4.1 What are the most common target organs once this chemical is inside the body (shortly mention where it is distributed/accumulates) ? (1 point)

4.2 What is the LD50 of the selected chemical? Please note that some chemicals may have more than one LD50, depending on the organism (rats, mice, guinea pigs, rabbits, etc) or if it was injected, inhaled, ingested, dermal, etc. If more than one LD50 is found, please DO NOT list more than FIVE if more than one is available (1 point).