

KATHMANDU UNIVERSITY  
End Semester Examination  
February/March, 2019

05 MAR 2019

Level : B.Sc.

Year : II

Time : 2 hrs. 30 mins.

Course : ENVS 201

Semester : I

F. M. : 55

SECTION "B"

[3Q × 7 = 21 marks]

Attempt *ANY THREE* questions.

1. Explain the atmospheric layers with the help of a diagram showing altitude range, temperature variation and important gases at different layers.
2. What is the reason for constant pH in the sea water? Explain with chemical reactions.
3. How does the oxygen and temperature vary in summer and winter seasons? Describe it with reference to the depth of a general lake.
4. A carbon monoxide monitor meter recorded 0.25% of carbon monoxide in air at 15°C and 1 atm pressure. Considering the molecular weight of CO as 28, calculate the concentration of the carbon monoxide of the recorded amount in units of g/m<sup>3</sup>.

SECTION "C"

5. Calculate the lethal amount of the substance for an animal weighing 75 kg when the LD<sub>50</sub> of the chemical is 10<sup>5</sup> μg/kg. [5]
6. What is the difference between dose and response of a chemical? [5]
7. What are the routes of toxic chemicals in terms of exposure and excretion in blood and lymph system of human? [5]
8. How bio-magnification and bio-accumulation effect ecosystem? [5]
9. Calculate the molecular weight of dry air considering that the atmospheric dry air consist only nitrogen at 28 g/mol, oxygen at 32 g/mol and argon at 40 g/mol. [5]

**OR**

The soil core of internal radius 2.5 cm and height 5 cm has been used for soil sample collection. If the weight of soil sample was 120 g with 8% soil moisture, find the bulk density of the soil.

10. Write short notes on (*ANY THREE*): [3Q × 3 = 9]
  - a. Biochemical effects of mercury
  - b. Photochemical smog
  - c. Polar vortex
  - d. PM<sub>2.5</sub>

