



The Open University of Sri Lanka

M.Sc. in Environmental Sciences – 2016/17

Eco toxicology and Pollution Management (NEP2223) – Level 8

Continuous Assessment Test II (No Book Test)

Duration: One Hour

---

Date: 09<sup>th</sup> July 2017

Time: 1.30 p.m. – 2.30 p.m.

---

Answer all the questions.

- I. a. Free radicals are formed in the body by ionization radiation. Explain how
- free radicals are formed in the body (10 marks)
  - glutathione (glutamylcysteinylglycine) is involved in detoxifying free radicals (30 Marks)
- b. Chemicals and radiation can cause mutations in DNA. Briefly explain the mechanism of action of the following examples
- Nitrite compounds present in food additives
  - UV exposure
  - Ethidium bromide used in Molecular Biology experiments
  - Oxidation of bases by reactive oxygen species (60 marks)
- 2.a. Classify the following substances as hepatotoxin, neurotoxin, nephrotoxin, dermatotoxin and carcinogen.
- |                     |              |           |             |
|---------------------|--------------|-----------|-------------|
| i. CCl <sub>4</sub> | ii. Nicotine | iii. Lead | iv. Mercury |
| v. vinyl chloride   |              |           |             |
- (10 marks)
- b. Define the following terms as applied in chemical toxicology.
- Threshold dose
  - Response
  - Differentiate local and systemic toxic response.
  - Distinguish between graded dose response curve and quantal dose response curve. (40 marks)
- c. i. Compare Phase I and Phase II reactions involve in biotransformation of xenobiotics compounds.
- Discuss detoxification of benzene (C<sub>6</sub>H<sub>6</sub>) and nitro benzene (C<sub>6</sub>H<sub>5</sub>NO<sub>2</sub>) in human body. (50 marks)