



**RAJARATA UNIVERSITY OF SRI LANKA
FACULTY OF APPLIED SCIENCES**

**Bachelor of Science in Applied Sciences
Third Year – Semester I Examination – July/August 2023**

BIO- 3203 – ENVIRONMENTAL POLLUTION

Time: Two (02) hours

Answer FOUR (04) questions including Question no 01.

1. The Thuruwila Water Treatment Plant is the sole water purification center in the North Central Province providing water to three divisions within the Anuradhapura district. Utilizing the knowledge acquired from the field visit, please answer the following questions:
 - a) How does the treatment plant effectively eliminate particles and debris from water?
(10 marks)
 - b) Name the unique aeration system used in this plant and give two reasons for using this system.
(10 marks)
 - c) Explain briefly the water purification process in Thuruwila, including a flow diagram to illustrate the various stages.
(40 marks)
 - d) In the event of unavoidable disruption to the water treatment process, what potential health hazards can arise in the community? Provide specific examples to illustrate the potential effects.
(40 marks)
2. Read the following newspaper extract and answer the questions below.

“Among the growing prevalence of light pollution caused by the excessive and misdirected artificial illumination, experts are raising urgent concerns about its profound impacts on both the natural darkness of the night sky and human well-being. The proliferation of brightly-lit high-rise buildings, though visually appealing, exacts a significant toll. Dr. Rachael Carter, an esteemed environmental health expert from the Institute for Environmental Studies, underscores the pressing need for immediate action. Dr. Carter highlights the detrimental effects of the relentless bright lights emanating from high-rise structures and unregulated

outdoor lighting, emphasizing the imperative to explore legislation as a means to regulate external lighting and effectively mitigate the risks associated with light pollution”.

- a) Mention **five (05)** light pollution sources in East Asian metropolises. **(10 marks)**
 - b) State **fifteen (15)** health and environmental effects due to light pollution in these cities. **(30 marks)**
 - c) Explain the potential impact of light pollution on hormone regulation and its association with certain types of cancer? **(20 marks)**
 - d) Describe briefly possible methods for reducing light pollution? **(40 marks)**
3. "Imagine a busy city with a vision of growth and development, where a major construction project is underway to build a new high-rise commercial complex in its downtown area. This determined endeavor involves a multitude of construction activities, such as excavating the foundation, pouring concrete for the building structure, installing steel beams, erecting scaffolding, wiring electrical systems, plumbing installations, constructing interior spaces, installing HVAC systems, and landscaping the surrounding area. The project also includes the construction of essential infrastructure and facilities, such as roads, parking lots, and utilities." Considering the above facts answer the following questions.
- a) Outline the **two (02)** types of environmental pollution and its sources in this busy city. **(20 marks)**
 - b) Describe briefly the effects of the above mentioned pollutants in part (a) above. **(40 marks)**
 - c) Provide suggestions to reduce the impacts of pollution mentioned in part (a) above. **(40 marks)**
4. Write a concise account highlighting the key challenges of proper solid waste management in Sri Lanka, with special reference to the advantages and disadvantages of integrated solid waste management. **(100 marks)**

5. Write short notes on the following.

- a) Groundwater pollution and its effect on humans.
- b) Methods of hazardous waste management.
- c) Importance of constructed wetlands for wastewater treatment.
- d) Benefits of environmental protection license.

(25 x 4 marks)

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