

**BINDURA UNIVERSITY OF SCIENCE EDUCATION
DEPARTMENT OF ENVIRONMENTAL SCIENCE**

**BACHELOR OF SCIENCE HONOURS DEGREE IN SAFETY, HEALTH AND
ENVIRONMENTAL MANAGEMENT**

ESM214_1_2022

BES PART II EXAMINATION

Environmental Monitoring, Evaluation and Management

2 HOURS

 **OCT 2023**

70 MARKS

INSTRUCTIONS

Answer **three** questions out of the **five** questions. You must answer question **one** from SECTION A, and any **two** from SECTION B.

SECTION A (COMPULSORY)

1. A piece of land is currently covered by a heathland ecosystem with a small area of wetland. There is a proposal to build a new waste treatment and recycling plant that will replace the current landfill system, where for the last 20 years waste has been dumped and buried in an old quarry. Some types of waste are also incinerated at this location. The landfill site has enough space to last for another 3 years. Twenty workers will lose their jobs when this site is closed down. 67% of the heathland will be cleared on-site and the wetland will be drained. The proposal includes the planting of a screening belt of non-indigenous trees, designed to hide the facility from the view of residents in the newly built housing estate. Trucks will transport material to and from the site, 16 hours a day.

- (a). In Table 1 below summarise the major arguments for and against the proposal, identifying key social and economic factors. [10]

Table 1: Points for and against building a waste treatment and recycling plant

	For	Against
Social Factors		
Economic factors		

- (b). Before the proposal can proceed explain why an Environmental Impact Assessment is required. [5]
- (c). Outline what would be involved in producing this report and what should be included in the final report. [8]

- (d). Discuss the major environmental considerations relevant to the proposal and, based on these points only, evaluate whether the proposal should be given permission to proceed or not. [7]

SECTION B

2. The reasons for cutting down trees are more important than the problems caused by deforestation. Discuss. [20]
- 3 (a). Explain the meaning of the term Logical Framework Approach or Logical Framework Analysis (LFA). [15]
- (b). What are the limitations of a LFA? [5]
4. Compare and contrast formative and summative evaluation. [20]
5. You want to develop a proposal on building a copper smelter. The Environmental Protection Agency is concerned about sulphur dioxide emissions from the proposed development of a smelter.
- (a). Why is sulphur dioxide formed during the smelting of this copper mineral? [2]
- (b). Describe two effects of excessive sulphur dioxide on environmental health. [2]
- (c). Explain the value of monitoring sulphur dioxide concentrations both before and during operation of the smelter, and also outline how this should be undertaken. [6]
- (d). Discuss the effective methods for reducing emissions of sulphur dioxide from the smelter and explain how these methods work. [10]

End of paper