RAJARATA UNIVERSITY OF SRI LANKA
FACULTY OF APPLIED SCIENCES

Bachelor of Science in Applied Sciences
Third Year – Semester II Examination – January/February 2023

BDC 3202 – ENVIRONMENTAL IMPACT AND RISK ASSESSMENT

Time: Two (02) hours

Answer the compulsory question and Two (02) of the optional questions.

Compulsory question.

[Approximate time allocation is ONE (01) hour]

1. a) Explain briefly the salient aspects and importance of EMP (Environmental Monitoring Plan) in the EIA (Environmental Impact Assessment) process. **(50 marks)**

b) Answer the following questions based on the project description given below.

There is a mineral sand mining project that extracts titanium minerals (ilmenite and rutile) and zircon using a dredge mining process to recover heavy minerals from the dune sands in Mannar. The mining process will use two cutter suction dredges that operate in a 100 m wide by 700 m long man-made mining pond with a minimum depth of 5 m and a maximum depth of 15 m. These dredges operate by cutting sand at the working face and transferring this sand by means of suction pump and pipe to the concentrator floating behind the dredges (Figure 1).

The proposed development will include an accommodation camp for 150 employees. All sewage will be treated on site and general (non-hazardous) waste will be buried in an on-site landfill. Hazardous waste will be transported by road to the Puttalam area for disposal in hazardous waste landfill.

i. Identify **five (05)** risks to the environment, taking into consideration the full range of project activities. **(25 marks)**

ii. Develop ratings for the assessment of consequence levels and likelihood levels. **(30 marks)**

iii. Construct a risk assessment matrix for this proposed project. **(25 marks)**

iv. Fill the following risk assessment table with the help of the above information.

(70 marks)

Project activity	Risk description	C	L	R	Mitigation Measures	RC	RL	RR

C- Consequence, L-Likelihood, R-Risk, RC- Residual Consequence, RL- Residual Likelihood, RR- Residual Risk

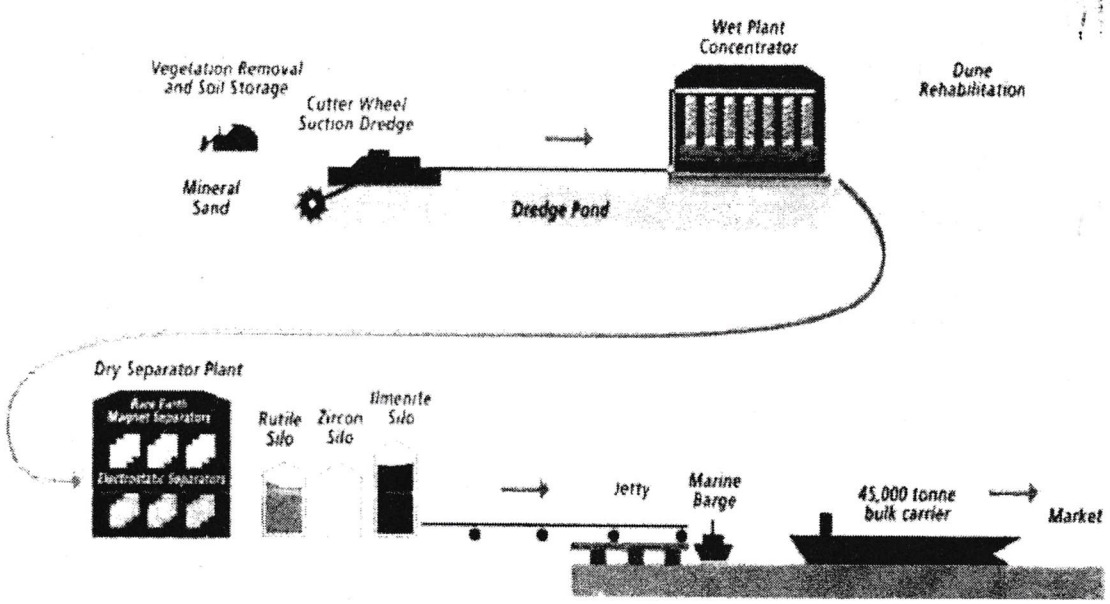

Figure 1: Schematic diagram of the proposed mining operation.

Optional questions -Answer <u>two (02)</u> questions only.

[Approximate time allocation is ONE (01) hour]

2. Critically discuss **<u>four (04)</u>** strengths and **<u>four (04)</u>** weaknesses of the screening procedure used in the EIA process in Sri Lanka. **(100 marks)**

3. Chemicals used in pesticides accumulate in living tissues and are found in the breast milk of mothers in cities that are a long way from agricultural areas. Giving reasons, explain what methods could be used to identify such indirect impacts. **(100 marks)**

4. a) Discuss briefly **<u>five (05)</u>** factors that are affecting the effectiveness of public involvement in the EIA process. **(50 marks)**

   b) Describe briefly the main elements of mitigation in the EIA process. **(50 marks)**

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