



# MANIPAL INSTITUTE OF TECHNOLOGY

MANIPAL

(A constituent unit of MAHE, Manipal)

## MANIPAL INSTITUTE OF TECHNOLOGY

### 2<sup>nd</sup> SEMESTER M. TECH (ENVIRONMENT ENGINEERING)

### END SEMESTER EXAMINATION, MAY 2023

### SUBJECT: ECOLOGY AND ENVIRONMENT IMPACT ASSESSMENT [CIE 5284]

Date: 22.05.2023

Time: 9.30 to 12.30

TIME: 3 HRS.

MAX. MARKS: 50

Note: 1. Answer all questions.

2. Any missing data may be suitably assumed.

Q. NO	QUESTION	MARKS	CO
1A	Briefly illustrate Shannon diversity Index with relevant equation.	2	CO2
1B	What is Sverdrup model of critical depth? Illustrate with diagram.	4	CO2
1C	Illustrate homeostasis in ecosystem and homeostatic plateau with a neat diagram.	4	CO1
2A	Explain Strategic Environmental Assessment (SEA). Outline the major difference between SEA and EIA.	4	CO3
2B	Illustrate the EIA process in India with the complete flow-chart. Discuss the various stages of EIA.	6	CO3
3A	What is the full form of FONSI? Explain FONSI in brief. Illustrate Environmental Impact Statement (EIS) and the major step associated with it with a flowchart.	5	CO3
3B	Outline different aspect and impact (positive and negative) associated with a mining project (Hypothetical) with the help of Leopold matrix. List the activities and major phase of the project and final cumulative score by assigning suitable magnitude (1 to 10) and significance in each aspect and evaluate the final impact score of the project. Comment whether you will choose this project.	5	CO4

<b>4A</b>	Demonstrate “Term of Reference” framed during the environmental clearance process.	<b>3</b>	<b>CO3</b>
<b>4B</b>	Illustrate “Environmental Auditing” in brief.	<b>3</b>	<b>CO5</b>
<b>4C</b>	What is Life Cycle Analysis (LCA)? Illustrate different impact categories included in it? Name some of the software used for it.	<b>4</b>	<b>CO5</b>
<b>5A</b>	Outline the major difference between Environment and Social Impact Assessment (ESIA) and Environment and Social Management Framework (ESMF).	<b>4</b>	<b>CO4</b>
<b>5B</b>	<p>A car washing and lubricating company has been operating for several years (more than 10 yr) in a terrain with the following characteristics: porous, filterable with a freatic level near to the surface (1.5 m depth). The company is located close by to an estuary branch which is quite useful for them since they discharge all the disposals and waste generated by this activity directly into the estuary. These disposals contain a high level of oils and greases. All the dumping from the car maintenance goes directly into the soil since there are not palettes or gutters. The lubricating company operates for 20hrs for seven days per week. The Municipality since the local people has complained has arranged the execution of an EIA and you are a part of it.</p> <p>a. Choose three environmental impacts of this activity</p> <p>b. Recommend three mitigation measures as part of your EMP to mitigate the impacts identified ?</p>	<b>6</b>	<b>CO4</b>