MANIPAL INSTITUTE OF TECHNOLOGY
MANIPAL
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MANIPAL INSTITUTE OF TECHNOLOGY

2nd SEMESTER M. TECH (ENVIRONMENT ENGINEERING)

END SEMESTER EXAMINATION, MAY 2024

SUBJECT: ECOLOGY AND ENVIRONMENT IMPACT ASSESSMENT [CIE 5215]

Date: **Time:**

TIME: 3 HRS. **MAX. MARKS: 50**

Note: 1. Answer all questions.
2. Any missing data may be suitably assumed.

Q. NO	QUESTION	Mark	CO	BL
1A	Illustate the difference between natural and cultural eutrophication.	**2**	**CO2**	**3**
1B	Illustate the major difference between Simpson and Shannon index of biodiversity measurement. Highlight importance of each methodology.	**3**	**CO2**	**3**
1C	Hussain sagar of Hyderabad is getting polluted due to sewage wastewater from the city through a drain flowing at a rate of 1.5 m^3/s with nitrogen concentration of 90 mg/L. Balkapur stream with flowrate of 12 m^3/s and nitrogen concentration of 5 mg/L also connected to Hussain sagar. The Hussain sager have volume of $5*10^5$ m^3 and initial nitrogen concentration of 15 mg/L. The outlet of Hussain sagar flows into Musi river at the downstream. The reaction rate is assumed to be 0.3 per day. Assuming no losses due to evaporation, calculate the steady state concentration.	**5**	**CO1**	**4**
2A	Illustate the necessity for conducting baseline study and discuss different environmental component measured during the baseline study.	**5**	**CO3**	**3**
2B	Illustrate the key stages/approach for strategic impact assessment (SEA) to adopt EV vehicle in India based on suitable government policy, plan and programme (PPP) with a suitable flowchart.	**5**	**CO3**	**3**
3A	Illustate the difference between EIA screening procedure adopted during the sanction of Asian development bank (ADB) and World bank (WB) projects.	**5**	**CO3**	**3**

3B	Shahpurkandi dam is a new dam constructed on the Ravi river to divert water from Pakistan and to be fed to Punjab farmer's land. India and Pakistan had Indus treaty agreement to share the river coming from Himalyan mountains. Prepare a leopold matix to illustate the potential impact and assign suitable ratings to evaluate whether the project is environmentally feasible. Matrix can be prepared considering impact value from 0-10 (0 being negative and 10 being most positive impact). Calculate the final impact score and significance of impacts. Political, legal and social factor can be included in the matrix.	**5**	**CO4**	**5**
4A	A lithium mine has been found in Jammu and Kasmir located near to a reserve forest and Himalayan mountain range nesting different flora, founa, and perennial rivers. List out different possible activities and its impact during the mineral exploration in the future. Prepare a significance matrix to list out all significant aspect and impact keeping in mind of the legal liability, public concern, frequency and severity of the impact. Compute final significance score by assuming hypothetical values of different impact.	**5**	**CO4**	**5**
4B	Tesla has planned to setup a EV vehicle manufacturing plant in Srinagar to utilize the lithium extracted from Jammu and Kasmir region. Prepare a environmental management plan report in a table format considering the significant impact, mitigation plan, monitoring mesures and instrument or cost incurred during the plant set-up and operation. Hypothetical data can be considered during preparation of the table considering environmental aspect such as air, water, soil, ground water, solid waste, social or economic and any other factor.	**5**	**CO4**	**5**
5A	Discuss the application of life cycle assessment (LCA) in comparative product analysis, ecodesign and ecolebelling. Illustrate the difference between type I, II and III of ecolebelling.	**5**	**CO5**	**3**
5B	Provide a brief discussion on risk assessment with a flowchart illustrating the steps involved in the process.	**5**	**CO5**	**3**