

**BACHELOR OF ENGINEERING (CIVIL ENGINEERING) , FOURTH YR, SECOND
SEMESTER EXAMINATION 2023**

SUBJECT: ECOLOGY AND ENVIRONMENTAL MANAGEMENT

Time : Three hours

(50 Marks for each Part)

Full Marks : 100

Use separate answer script for each Part

PART I (50 Marks)

Answer any Three (3) question Two (2) marks are reserved for neatness and to the point answer. Assume relevant data if necessary		
Q1.	Write short notes on :- (any four)	4 x 4= 16
a)	Ecological niche	
b)	Food web	
c)	Biological magnification	
d)	Landscape Ecology	
e)	Artificial ecosystem	
f)	Food Chain	
Q2.	Define Ecology. What is its need for studying as Civil Engineering paper? What are the different subdivisions of ecology as subject? Explain the concept of biological factors.	2+3+4+ 3 =12
a)	.Justify the significance and importance of energy and nutrient transmission considering Sun as focal point .	
Q3.	What do you understand by ecosystem? Explain briefly the biotic components of an ecosystem	4
a)	What is biogeochemical cycle? What is its significance? Draw a neat labeled sketch of Phosphorous Cycle and explain briefly its significance with limitation. Why it is not perfect?	6
b)		10
Q4.	Describe the major components of pond ecosystem with a neat sketch	10
a)	Briefly discuss on various communities normally exist in the limnetic zone in aquatic environment from producer to consumers with a neat sketch. Give suitable examples.	6
b)		

[Turn over

B.E (CIVIL ENGG.) 4th YEAR 2nd SEMESTER EXAMINATION, 2023
(1st/ 2ndSemester /Repeat/ Supplementary/ Annual /-Biannual)
SUBJECT: Ecology & Environmental Management (Elective)

Question No.	Part-II (50 Marks)	Marks
	Answer any five questions:	
Q.1)	a) State the objectives behind the 'Environmental Impact Assessment'. b) Draw the " Waste Management Hierarchy " diagram and justify the order of preference.	5 5
Q.2)	a) What are the essential features of " Leopold Matrix method of Environmental Impact Analysis "? b) What are the potential impacts of the following activities during the construction phase of any project? i) Site clearing ii) Civil Works iii) Operation of Heavy Equipment	4 6
Q.3)	a) Discuss in brief on the steps followed in the " Semi-quantitative Index Method of Environmental Impact Analysis " to estimate the potential environmental impact. b) What are objectives behind the recommendation of mitigation measures ?	7 3
Q.4)	a) Describe the three-step process applied for impact mitigation for any type of developmental project b) State the essential components of an effective " Environmental Management Plan (EMP) ".	5 5
Q.5)	a) State the significance of " Technology change " in achieving waste minimization for modern brick kilns b) State the significance of " Product Modification " in achieving waste minimization for distillery industry.	5 5
Q.6)	a) What do you mean by " Carrying Capacity of an environment? b) Discuss on the " Verhulst Model of Population Dynamics " and its graphical interpretation.	3 7