AR18

CODE: 18IET332   **SET-1**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
III B.Tech II Semester Supplementary Examinations, January-2022
ENVIRONMENTAL IMPACT ASSESSMENT
(Interdisciplinary Elective – III)

Time: 3 Hours   **Max Marks: 60**

Answer ONE Question from each Unit
All Questions Carry Equal Marks
All parts of the Question must be answered at one place

UNIT-I

1.	a)	Examine the limitations of EIA.	6M
	b)	Categorize the various Environmental parameters to be considered for project evaluation.	6M

(OR)

2.	a)	Define what is EIA? How can it be conducted?	6M
	b)	What is the purpose of Environmental Impact Assessment? Describe the major areas covered in an EIS.	6M

UNIT-II

3.	a)	Describe the concept of Net works method of Impact assessment; explain net works methodology for pulp mill impact assessment with a flow diagram.	8M
	b)	Appraise the Ad-hoc method of EIA.	4M

(OR)

4.	a)	Assess the application of overlay analysis in coal mining.	4M
	b)	List important Environmental impact assessment methodologies, describe Leopold Interaction matrix method.	8M

UNIT-III

5.	a)	Explain what are the harmful effects of air pollution on ecosystems? Describe their mitigation methods.	6M
	b)	Organize a detailed note on Biological Impact Assessment.	6M

(OR)

6.	a)	Describe biological and regulatory mitigation measures for the mitigation of biological impact.	7M
	b)	Explain various impacts on flora and fauna by developmental projects.	5M

UNIT-IV

7.	a)	Explain what is Environmental auditing and describe its advantages.	5M
	b)	Determine the role of environmental audit for sustainable development.	7M

(OR)

8.	a)	Describe the two types of Environmental auditing.	4M
	b)	Examine the stages in Environmental audit (pre-audit/activities at site/post audit activities).	8M

UNIT-V

9.	a)	Explain why the acts are necessary and write its objectives?	4M
	b)	Develop an EIS report to a coal mining company.	8M

(OR)

10.	a)	Explain what are the major steps/elements covered in EIS? What is the format for EIS documentation?	8M
	b)	Distinguish the functions of CPCB & SPCB in relation to water act.	4M

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All Questions Carry Equal Marks
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UNIT-I

1.	a)	What do you understand manufacturing processes	4M
	b)	Explain the basic workshop processes and their applications	8M

(OR)

2.	Classify the manufacturing process and explain any three manufacturing process and write some applications.	12M

UNIT-II

3.	a)	Give a neat sketch of iron jack plane and name its different parts.	8M
	b)	State the difference between cross cut saw and tenon saw	4M

(OR)

4.	a)	With the help of neat sketch ,describe the following (i) Pincer and (ii) Rasp	6M
	b)	Sketch the following joint made in carpentry shop (i) half lap Joint and (ii) Mortise and Tenon joint.	6M

UNIT-III

5.	a)	Describe tools used for marking and measuring	6M
	b)	Explain different cutting tools used in fitting	6M

(OR)

6.	a)	Write short notes on (i) Screw driver and (ii) Spanner	6M
	b)	Explain the following Fitting operations: (i) Tapping and (ii) Dieing	6M

UNIT-IV

7.	a)	Describe with sketches (i) Smithy's Forge and (ii) Anvil?	8M
	b)	Write at least six advantages of forging.	4M

(OR)

8.	a)	Sketch and show the difference between Hand hammer and Sledge hammer?	6M
	b)	Explanation of (i) Swagining (ii) Fullering	6M

UNIT-V

9.	a)	Why snips are used? Give a description of some of them with sketches.	6M
	b)	State the difference between half moon stake and Round bottom stake.	6M

(OR)

10.	a)	Explain the following operations: (i) Bending and (ii) Squeezing	6M
	b)	State the difference between straight snip and curved snip.	6M

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UNIT-I

1. a) What is 2D sampling and quantization? Explain difference between sampling & quantization?   6M
   b) What is Digital Image? And explain how it is represented?   6M

(OR)

2. a) What are the basic relationships between pixels? Explain in detail.   6M
   b) Explain the various components of general purpose image processing system.   6M

UNIT-II

3. a) What is image enhancement and explain the importance of image enhancement in image processing   6M
   b) Explain about Contrast Stretching and Bit-Plane slicing.   6M

(OR)

4. a) Differentiate between spatial domain enhancement and frequency domain enhancement?   6M
   b) What are various Spatial operations in a digital image?   6M

UNIT-III

5. a) What is the difference between Lossless and Lossy image compression? and Explain   6M
   b) What is redundancy? Explain the causes of redundancy in an image.   6M

(OR)

6. a) With an example, explain the concept of Run Length coding.   6M
   b) What is filtering techniques in image processing? and explain following filter techniques BOX filter, Smoothing Linear Filters, Median filters, Sharpening Filters   6M

UNIT-IV

7. a) What are the Applications of morphology? and explain it.   6M
   b) Explain the concept of Dilation and Erosion operation with example   6M

(OR)

8. a) What is thinning and thickening in image processing? and explain   6M
   b) Explain the opening and closing operations in image morphology with examples?   6M

UNIT-V

9. a) What are the Different Types of Image Segmentation Techniques? Explain Thresholding Segmentation.   6M
   b) Explain about Region Splitting and Merging with an example   6M

(OR)

10. What is region splitting? Explain the region-based segmentation techniques?   12M

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ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
III B.Tech II Semester Supplementary Examinations, January-2022
ADVANCED CODING – II
(Interdisciplinary Elective – III)

Time: 3 Hours   Max Marks: 60

Answer ONE Question from each Unit
All Questions Carry Equal Marks
All parts of the Question must be answered at one place

UNIT-I

1. a) What is backtracking? Explain the merits and demerits of backtracking.   6M
    b) Discuss and give the solution for N-Queens problem.   6M
                                      (OR)
2. a) Discuss the Linear Search with Suitable Example and Derive the Time complexity. 6M
    b) Solve the **PEAK ELEMENT** problem.   6M
        A peak element is an element that is strictly greater than its neighbours.
        Given an integer array numbers, find a peak element, and return its index. If the
        array contains multiple peaks, return the index to any of the peaks.
        Example :
        Input: nums = [1,2,1,3,5,6,4]   **Output**: 5

UNIT-II

3. a) Give an algorithm for Count Sort with example. Also derive time complexity.   6M
    b) **FIND MAXIMUM GAP** : Given an integer array numbers, return the maximum   6M
        difference between two successive elements in its sorted form. If the array contains
        less than two elements, return 0.
        Example:
        Input: nums = [3,6,9,1]   **Output:** 3
                                      (OR)
4. a) Define Hashing? Explain Open addressing and Separate chaining with suitable   6M
        Example.
    b) Solve the **Largest Number** problem.   6M
        Given a list of non-negative integers nums, arrange them such that they form the
        largest number.
        Note: The result may be very large, so you need to return a string instead of an
        integer.
        Example:
        Input: nums = [3,30,34,5,9]   **Output:** "9534330"

UNIT-III

5. a) Discuss Heap sort with suitable example.   6M
    b) **PATH SUM:** Given the root of a binary tree and an integer target Sum, return true   6M
        if the tree has a root-to-leaf path such that adding up all the values along the path
        equals target Sum. A leaf is a node with no children.
        Example:
        Input: root = [5,4,8,11,null,13,4,7,2,null,null,null,1], target Sum = 22
        Output: true

6. a) Define Graph. Discuss about Representation of Graph with example. 6M

   b) Write a pseudo code for **SAME TREE** problem. 6M
   Given the roots of two binary trees p and q, write a function to check if they are the
   same or not. Two binary trees are considered the same if they are structurally
   identical, and the nodes have the same value.
   Example:
   Input: p = [1,2], q = [1, null,2]   **Output:** false

UNIT-IV

7. a) Explain Dijkstra's Algorithm with example. 6M
   b) Solve the **Two City Scheduling** problem 6M
   A company is planning to interview 2n people. Given the array costs where costs[i]
   = [aCost$_i$, bCost$_i$], the cost of flying the ith person to city a is aCost$_i$, and the cost of
   flying the ith person to city b is bCost$_i$.
   Return the minimum cost to fly every person to a city such that exactly n people
   arrive in each city.
   Example:
   Input: costs = [[10,20], [30,200], [400,50], [30,20]]   **Output:** 110

(OR)

8. a) Explain KMP algorithm with Suitable Example. 6M
   b) Solve **Most Common Word** problem. 6M
   Given a string paragraph and a string array of the banned words banned, return the
   most frequent word that is not banned. It is guaranteed there is at least one word
   that is not banned, and that the answer is unique.
   The words in paragraph are case-insensitive and the answer should be returned in
   lowercase.
    Example:
   Input: paragraph = "Bob hit a ball, the hit BALL flew far after it was hit."
           banned = ["hit"]   **Output:** "ball"

UNIT-V

9. a) Explain about Dynamic programming. 6M
   b) Demonstrate 0/1 Knapsack problem with suitable example. 6M

(OR)

10. a) Solve the **Coin Change** problem: Given a value N, if we want to make change for 6M
    N cents, and we have infinite supply of each of S = {S1, S2, .. , Sm} valued coins,
    how many ways can we make the change? The order of coins doesn't matter.

    For example, for N = 4 and S = {1,2,3}, there are four solutions:
    {1,1,1,1},{1,1,2},{2,2},{1,3}. So output should be 4. For N = 10 and S = {2, 5, 3,
    6}, there are five solutions: {2,2,2,2,2}, {2,2,3,3}, {2,2,6}, {2,3,5} and {5,5}. So
    the output should be 5.

    b) Solve the **Longest Common Sub Sequence** problem. 6M
     Given two sequences, find the length of longest subsequence present in both of
    them. A subsequence is a sequence that appears in the same relative order, but not
    necessarily contiguous.
    Example:
    Input: text1 = "abcde", text2 = "ace"   **Output:** 3

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ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
III B.Tech II Semester Supplementary Examinations, January-2022
COMPETITIVE PROGRAMMING - II
(Interdisciplinary Elective – III)

Time: 3 Hours   Max Marks: 60

Answer ONE Question from each Unit
All Questions Carry Equal Marks
All parts of the Question must be answered at one place

UNIT-I

1.	a)	What is searching? Explain Linear search briefly.	6M
	b)	Define sorting. Explain merge sort with algorithm and suitable example..	6M

(OR)

2.	a)	What is binary search? Explain Binary search briefly.	6M
	b)	Discuss how to sort elements using quick sort with suitable example. Write an algorithm for quick sort.	6M

UNIT-II

3.	a)	Write an algorithm to delete an element anywhere from singly linked list and also explain applications of singly linked list.	6M
	b)	Explain the operations performed on simple stack with algorithms. Explain applications of stack.	6M

(OR)

4.	a)	What is double linked list? Write an algorithm for deleting any node in double linked list? Explain.	6M
	b)	Explain operations performed on queue with algorithms. Explain applications of queue.	6M

UNIT-III

5.	a)	What is a Binary search tree? Explain BST operations with example?	6M
	b)	Define a tree. Explain tree terminology and applications.	6M

(OR)

6.	a)	What is a graph. Explain graph representations.	6M
	b)	Explain Graph Traversals briefly with example.	6M

UNIT-IV

7.	a)	Explain all DML commands with suitable example.	6M
	b)	Explain SQL data types, Operators and functions.	6M

(OR)

8.	a)	What are grouping by and order by clauses? Explain in detail.	6M
	b)	What are the advantages and dis-advantages of dbms?	6M

UNIT-V

9.	a)	Explain sub query and correlated sub query with example.	6M
	b)	What is Join? Explain all join types briefly.	6M

(OR)

10.	a)	What is functional dependency? Explain its types briefly.	6M
	b)	Define Normal Form. Write short notes on each normal form.	6M

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ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
III B.Tech II Semester Supplementary Examinations, January-2022

SOFT COMPUTING
(Open Elective – IV)

Time: 3 Hours   **Max Marks: 70**

Answer ONE Question from each Unit
All Questions Carry Equal Marks
All parts of the Question must be answered at one place

UNIT-I

1.	a)	What are different fuzzy set operations? Explain with examples.	7 M
	b)	What is the importance of membership function in fuzzy logic? Explain different types of membership functions with example.	7 M

(OR)

2.	a)	Explain Soft Computing. How does it differ from Hard Computing?	7 M
	b)	Differentiate Fuzzy sets and Crisp sets?	7 M

UNIT-II

3.	a)	Explain Fuzzy relations with suitable examples.	7 M
	b)	What is Sugeno fuzzy model? Explain with neat diagram.	7 M

(OR)

4.	a)	What is fuzzy reasoning? Explain with examples.	7 M
	b)	What is Mamdani fuzzy model? Explain.	7 M

UNIT-III

5.	a)	What are the different types of encoding, selection crossover, mutations of GA, Explain each type with suitable examples	8 M
	b)	How does simulated annealing work? Explain.	6 M

(OR)

6.	a)	Explain Genetic Algorithm (GA) with neat Flow Diagram.	8 M
	b)	Differences between GA and Traditional Algorithms.	6 M

UNIT-IV

7.	a)	What is supervised learning? Explain with example.	6 M
	b)	What is single layer Perceptron and Multilayer Perceptron? Deep describe Multilayer Perceptron.	8 M

(OR)

8.	a)	What is Perceptron? Explain Adaline Neural Networks.	7 M
	b)	Deep describe Radial Basis Function Networks.	7 M

UNIT-V

9.	a)	What is supervised and unsupervised learning in neural networks? Describe unsupervised learning in neural networks.	6 M
	b)	Deep describe Kohonen Self-Organizing Maps (SOM) networks.	8 M

(OR)

10.	a)	What is Hebbian learning in neural networks? Explain with suitable Example.	7 M
	b)	Write short notes on Principal Component Analysis	7 M