LAKSHYA INSTITUTE OF TECHNOLOGY

BSC.CS

2nd SEM UNIVERSITY

OLD QUESTION

2025

Time :As in Programme

Full Marks : 100

The figures in the right-hand margin indicate marks.

*Answer **all** questions.*

PART-I

1. Answer all the following Questions in one word. 1x10

   a. Which data model stores data in the form of tables ?

   b. Which symbol is used for derived attribute in E-R Diagram ?

   c. Which one is Top-down process of defining the super class and sub classes ?

   d. Cardinality of a relation refers to the number of ____ (Rows/Columns).

   e. Which normalization form is based on the transitive dependency ?

   f. Cartesian product in relational algebra is a ____ (Binary/ Unary) operator.

   g. An entity set that does not have sufficient attributes to form a primary key is a ____ Entity set.

   h. A subschema specifies ____ level in the three schema architecture.

   i. The full form of DDL is ____.

   j. Give one example of Non-procedural query language used in DBMS.

(Turn Over)

PART-II

2. Answer the following question in 50 words each. 2x9

   a. What is database schema and instances ?

   b. What is weak entity set ? How it is represented in ER model.

   c. Define data independence. Differentiate between physical and logical data independence.

   d. What do you mean by candidate key and super key ? Give an example.

   e. Show that $\{A \rightarrow BC, B \rightarrow D\}$ derives $A \rightarrow D$.

   f. What do you mean by composite attribute in ER model ? Give an example.

   g. Write the conditions of 3NF.

   h. What do you mean by atomic transaction ?

   i. What is Partial FD ? Give an example.

PART-III

3. Answer any eight questions of the followings in 250 words each. 5x8

   a. Explain the disadvantages of file processing system used as data storage.

   b. Explain the three schema architecture of database system.

   c. List the different types of attributes used in ER model with examples.

   d. Explain the different types of users in the database system.

   e. Describe some SQL DDL statements with examples.

   f. Explain the different states of transaction with the state transition diagram.

   g. Describe the different properties of transaction.

   h. Consider a relational schema R with attributes {A, B, C, D} and the set of functional dependencies $\{A \rightarrow B, AB \rightarrow D, B \rightarrow C\}$. Find the primary key of R. Give a lossless-join decomposition of R into BCNF.

   i. Explain the different constraints associated with relational model.

   j. State the armstrong's Axioms and the inference rules on functional dependencies.

PART-IV

Answer any four of the following in 800 words each. 8x4

4. Discuss the different features of enhanced ER model with suitable examples.

5. Write the SQL statements for the followings.

   a. Create a table Student (roll integer(5), name varchar2(20), mark integer(3))

   b. Insert three records into this table.

   c. Find the name of students securing more than 60 marks.

   d. Find the name of the student securing highest mark.

6. Discuss the different types of set operations and join operation in Relational algebra with suitable examples.

7. Describe the concept of normalization in DBMS and explain various normal forms with examples.

8. What is concurrent schedule ? Explain the two phase ordering protocol and time stamp based protocol for concurrency control in transactions.

2024

Time :As in Programme

Full Marks : 60

The figures in the right-hand margin indicate marks.

*Answer **all** questions.*

PART-I

1. Answer all questions: (1x8=8)

   a. EER stands for _____?

   b. _____ is an entity that can only exist when owned by another one?

   c. FD stands for_____?

   d. _____ is a constraint that is similar to functional dependency or multi-valued dependency?

   e. DDL stands for_____?

   f. _____ is the full form of DCL?

   g. _____ command makes the transaction permanent in the database?

   h. ACID stands for_____?

PART-II

2. Answer any eight of the following within two to three sentences each. (1.5x8=12)

   a) What do you mean by schema?

   b) Define multivalued attribute with an example?

(Turn Over)

c) What is database?

d) What do you mean by BC NF?

e) Define super key with an example?

f) What is DML? Give one example?

g) What is the role of retrieval queries in dbms?

h) Define lock?

i) What is the use of abort command in transaction?

j) Define time stamp?

PART-III

3. Answer any eight of the following within 75 words each. (2x8=16)

a) What are data models?

b) What is the difference between physical data independence and logical data independence?

c) Elaborate database users briefly?

d) What is a primary key? Give an example?

e) What is 3rd NF?

f) What is TCL? What are the commands used in TCL?

g) Define DIVISION with example?

h) What are SQL data types?

i) Define serializability?

j) What is recoverability?

PART-IV

Answer all the following within 500 words each. (6x4=24)

4. What is database system? Describe the architecture of database system with a suitable diagram?

OR

Define ER model? Draw an ER model for hospital management system?

5. What do you mean by normalization? Explain different types of normalization with a suitable example?

OR

Define Join? Explain different types of joins with suitable examples?

6. Define SQL? Explain INSERT, DELETE and UPDATE with syntax and suitable examples?

OR

Explain relational algebra along with relational calculus through examples?

7. What is a transaction? Explain various states with a suitable diagram and properties of transaction?

OR

Define concurrency control? Explain in detail locking techniques for concurrency control ?

IV - S - B.Sc. - (ITM) - Core - X - (DBMS)

NO-166.

2019

Full Marks - 50

Time - As in the Programme

The figures in the right hand margin indicate marks.

Answer SIX questions including Q. No. 1.

1. Write the answer of the following questions. [1×10

(i) What is the use of RAID ?

(ii) What is meant by disk buffer ?

(iii) What is an instance and schema of the database ?

(iv) What is meant by query optimization ?

(v) What is weak entity ?

(vi) What is functional Dependency ?

(vii) What is loss less join property ?

(viii) Define Metadata.

[Cont...

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(ix) What is an instance and schema of the database ?

(x) Define stored and Derived value attributes.

2.(a) Elaborate the three-level Architecture of database system. [4

(b) Explain the responsibilities of a Database Administrator. [4

3. What do you understand by relational model of database system ? Elaborate the major characteristics of relational database management system. [8

4.(a) What is ER - diagram ? Explain all the categories of attributes. [4

(b) Draw ER diagram for college management system ? [4

5. Explain the following SQL statement with syntax and examples. [4

(i) ROLL BACK

(ii) GRANT

[Cont...

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(iii) DROP

(iv) GROUP BY

6. What is Normalization ? Discuss the 1st, 2nd, 3rd and BCNF Normal forms. [8

7.(a) Define Indexing. Discuss type and order of index with example. [4

(b) What is query processing. Discuss various steps of query processing. [4

8. What are the various operations used in Relational algebra ? Discuss each with an example. [8

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ND-39.

III - S - B.Sc. - Comp. Sc. - (H) - CC - VI - (DMS)

2020

Full Marks - 50

Time - As in the Programme

The figure in the right hand margin indicate marks.

Answer ALL questions.

Group - A

(Answer all questions. Each question carries 1 mark)

1.(a) Define the term Database Management System.
(b) Differentiate between weak entity set and strong entity set.
(c) Differentiate single and multi valued attribute.
(d) What are the different types of aggregate functions ?
(e) Differentiate between Natural join and Equi join
(f) What is the syntax of Alter Command ?
(g) Define 2NF.
(h) State two properties of UML Design.
(i) Define the term Hashing.
(j) State two applications of Query Processing.

Group - B

(Answer all questions. Each question carries 8 marks)

2.(a) Construct the E-R diagram university Online Air ticket Reservation System.

OR

[Cont...

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(b) Define the term DBMS. What are the different advantages of DBMS over traditional file system ? Explain each one in brief.

3.(a) Write Short notes on the following operations : Project, Join, Rename

OR

(b) What are the different types of data model used in DBMS ? Explain the structure of relational data model.

4.(a) State the functionalityt of any five SQL commands with syntax.

OR

(b) Write short notes on ER and EER to Relational mapping.

5.(a) What are the different types of normal forms ? Explain each one in brief with suitable example.

OR

(b) What are the different types of Diagrams used in UML Design ? Explain each one in brief with suitable example.

6.(a) Define the term "File": What are the different types of File management techniques ? Explain each one in brief.

OR

(b) Write short notes on :

(i) Query Optimization

(ii) Disk Storage

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III - S - B.Sc. - (ITM) - Core - 06 -

(Database System)

2023

Full Marks - 60

Time - As in the Programme

The figure in the right hand margin indicate marks.

Answer ALL questions.

1. Answer all the questions : [1 x 8 = 8

(a) What is Database ?

(b) What do you mean by derived attribute ?

(c) Define Transaction.

(d) What is primary key ?

(e) Who is database administrator ?

(f) What is cardinality ?

(g) Define data model.

(h) What is entity ?

2. Answer any EIGHT of the following questions : [1.5 x 8 = 12

(a) What is candidate key ?

(b) What is functional dependency ?

(c) What is the use of join in SQL ?

(d) Write the rules for 2NF.

[P.T.O...

(e) How do you know strong and weak entity ?

(f) What is the use of check point in DBMS ?

(g) What is aggregate function ?

(h) Define two-phase locking.

(i) What is normalization ?

(j) What do you mean by serializability ?

3. Write short notes : [2 x 8 = 16

(a) Write any four commands under DML.

(b) Write a query to count the total no of employees who are working in a company having salary greater than 20,000.

(c) Write the difference between delete and drop in SQL.

(d) Describe 3NF.

(e) Write different keys are used in DBMS.

(f) What is relational algebra ?

(g) What is DDL ? Write any four commands used under DDL.

(h) Write the use of ORDERBY clause in SQL with an example.

(i) Write the SQL commands to insert 3 records to a table “Student” as : Name Varchar (20), dob date, address varchar (22).

(j) Write different symbols and there use in ER Diagram.

[Cont...

4. Answer the following questions : [6 x 4 = 24

(a) Write short note on 3-tier architecture.

OR

Draw the ER diagram of library management systems and describe it.

(b) Write short note on multivalued dependency.

OR

Discuss different normalizations with examples.

(c) Explain different types of constraints and there need in DBMS.

OR

Explain SELECT and PROJECT operations with examples.

(d) What is Transaction ? Explain about ACID properties with suitable example.

OR

What is concurrency control ? Explain various problems with concurrent execution.

III - S - BSc. - (ITM) - P - 06 -
(DATABASE SYSTEM) (NC)

2022

Full Marks - 60

Time - As in the Programme

The figure in the right hand margin indicate marks.

Answer ALL the questions.

1. Answer all the Questions. [1 X 8 =8]

   a) What is tuple?

   b) Define entity?

   c) What is primary key?

   d) What is structural constraint?

   e) Write the use of NOT NULL constraint in DBMS.

   f) What is JOIN statement?

   g) What is schema?

   h) Write the use of normalization.

2. Answer any eight of the following Questions. [1.5 X 8=12]

   (a) What is unary operation in relational algebra?

   (b) Write the use of DCL.

   (c) What is consistency in DBMS?

   (d) Write the difference between UNION and UNION ALL.

[P.T.O...

(e) What is nested query?

(f) What do you mean by transparent DBMS?

(g) Write the use of checkpoint.

(h) What is 1NF?

(i) What is relationship in DBMS?

(j) What is recoverability?

3. Write short notes. [2 X 8=16]

(a) What are the criteria for 2nd Normal form?

(b) What is the need of concurrency control?

(c) When does checkpoint occur in DBMS?

(d) Explain time-stamp ordering.

(e) What do you understand by query optimization?

(f) What is the use of COMMIT and ROLLBACK commands in SQL?

(g) How do you know which one is the week entity? Give an example.

(h) Define transaction processing.

(i) How to differentiate between attributes and keys?

(j) Find out the student list from the student table those who are belongs to BBSR and obtained more than 350marks.

[Cont...

4. Answer ny four of the following Questions. [6 X 4=24]

a) Explain database architecture with suitable diagram.

OR

What are the objectives of three schema architecture? Explain the architecture with suitable diagram.

b) Discuss the need and use of different symbols in ER model. Draw the ER diagram for Hospital Management System.

OR

Explain the 3rd and 4th Normal form with examples.

c) Explain unary relational operations in DBMS with example.

OR

Discuss the properties of transaction with suitable example.

d) Discuss various locking techniques used in concurrency control.

OR

Define serializability. Explain the concept of serializability with a suitable example.

III - S - B.Sc. - (ITM) - Core - 06 -
(Database System) - (R & B)

2024

Full Marks - 60

Time - As in the Programme

The figure in the right hand margin indicate marks.

Answer ALL questions.

1. Answer all the questions : [1 x 8 = 8

(a) What do you mean by instance ?

(b) What is reference key ?

(c) What is Subschema ?

(d) What is the need of normalization ?

(e) What do you mean by abort state ?

(f) Write down the notation for weak entity.

(g) What is the use of checkpoint ?

(h) What do you mean by degree in a relation ?

2. Answer any EIGHT of the following questions : [1.5 x 8 = 12

(a) Write the use of DML.

(b) Define functional dependency.

[Cont...

(c) Explain different types of database users.

(d) Write down the difference between simple and composite attributes.

(e) Write down the syntax for rename.

(f) What is concurrency control ?

(g) How to explain division operation ?

(h) What is timestamp ordering ?

(i) Write down the characteristics of primary key.

(j) Define projection operation.

3. Write short notes : [2 x 8 = 16

(a) What is the criteria for 2NF ?

(b) Write the need of client-server architecture.

(c) Write a query to add a new columns job of varchar (12) to the employee table.

(d) How to write a SQL program to print the student details that stored in student database.

(e) Define specialization.

(f) How do you explain relational calculus ?

(g) Explain DCL.

(h) What is the necessity to use Recoverability ?

(i) What is EER diagram ?

(j) Define transaction processing.

[Cont...

4. Answer the following questions : [6 x 4 = 24

(a) Explain 3-schema architecture with suitable diagram.

OR

Explain various problems with concurrent execution of transaction in DBMS.

(b) What is ER-diagram ? Write down all the notations used in ER diagram and draw an ER diagram for Hospital Management System.

OR

Explain different types of normalizations with examples.

(c) What is relational algebra ? Explain different relational operations with examples.

OR

Discuss database languages with examples.

(d) Define Serializability. Explain the concept of serializability with a suitable example.

OR

What is Transaction ? Define different states and ACID properties of transaction.

3.(a) What is aggregation function ? What are the aggregate functions used in SQL ?

(b) Write short note on :

(i) Schema

(ii) View

OR

(c) Explain DDL and DML statement in SQL . Explain all the commands belonging in that.

4.(a) What is Normalization ? Discuss different normal forms with example ?

OR

(b) What is join dependencies ? Explain with an example.

5.(a) Discuss various phases of database design ?

(b) Discuss heap file organization.

OR

(c) What is relational algebra query tree ? Give an example.

(d) What is indexing ? Differentiate between primary and secondary indexing.

2022

Full Marks - 70

Time - As in the Programme

The questions are of equal value.

Answer ALL questions.

1.(a) Explain E-R modelling symbol.

(b) Differentiate between Attribute and entity.

OR

(c) Define external level, conceptual level and internal level in architecture of database system.

(d) Give an example of the fallowing relationships :

(i) One to one

(ii) One to many

(iii) Many to many

2.(a) Explain selection and projection with example.

(b) Define different types of joins.

OR

(c) Write short note on :

(i) Relational Calculus.

(ii) Set Difference.

(d) Define relational database constraints ? Explain with example.

[P.T.O...

IV - S - BCA - CC - 10 - (DATABASE SYSTEMS)

2022

Full Marks - 60

Time - As in the Programme

The figure in the right hand margin indicate marks.

Answer ALL questions.

Group - A

1. Answer all questions : [8 x 1

(a) _____ is collection of interrelated data.

(b) _____ identifies entity within an entity set in relational database.

(c) _____ is enforced with the help of foreign key.

(d) _____ automatically takes care of backup and recovery.

(e) _____ ensures that the database properly changes states upon a successfully committed transaction.

(f) Data about data is normally termed as _____.

(g) The index table has _____ columns.

(h) Record is also called as a _____.

Group – B

2. Answer any EIGHT within TWO to THREE sentences : [8 x 1.5

(a) Explain primary key with an example.

[P.T.O...

(b) Explain different types of relation in DBMS.

(c) Explain first normal form.

(d) What are different type of database users.

(e) Define DDL statement.

(f) Explain candidate key in DBMS.

(g) What is division operation in binary relation.

(h) Define foreign key.

(i) Explain GRANT operation.

(j) What is UPDATE command ?

Group – C

3. Answer any EIGHT from the following within 75 words : [8 x 2

(a) State the usability of strong entity in ER Diagram.

(b) What is difference between database integrity and database security.

(c) Explain two schema architecture of data abstraction mode.

(d) Explain Partial dependency in DBMS.

(e) Explain second normal form.

(f) Explain EER in DBMS.

(g) Explain fourth normal form in DBMS.

(h) Define SCHEMA with examples.

(i) Distinguish between Tuple and domain in a Table.

(j) State the name of four properties of transaction.

[Cont...

Group – D

Answer all questions : [4 x 6

4. Explain the function of DBMS.

OR

Explain Entity Relationship (ER) Model with example.

5. What is Normalization ? Explain different normalization method.

OR

What is join dependency ? Explain with an example.

6. What is Unary Relational Operation? Explain SELECT and PROJECT operation.

OR

Explain insert, delete and update statement with example.

7. Explain various concurrency control techniques.

OR

What is Properties of Transactions and Recoverability ?

II - S - BCA - Core - 1 - Major - 3 -(Data Structure)-
(Regular) - (2024 AB, NEP - 2020)

2025

Full Marks - 100

Time - As in the Programme

The figures in the right hand margin indicate marks.

Answer all the questions.

Part – I

1. Answer all the question : [1 x 10

a. Which of the following is a nonlinear data structure ?

i) Array ii) Linked List

iii) Stack iv) Tree

b. Which of these is used for implementing recursion ?

i) Stack ii) Queue

iii) Linked List iv) Tree

c. The number of leaf nodes in a binary tree with n nodes :

i) n ii) n + 1

iii) 2n iv) n - 1

[Cont....

d. In which data structure is each element connected to multiple elements, forming a network ?

i) Stack ii) Tree

iii) Graph iv) Queue

e. Binary Search can be applied only on :

i) Unsorted array ii) Sorted array

iii) Linked List iv) Graph

f. The maximum number of children that is possible for a node is known as the _____ of a node.

g. A _____ list is a type of linked list where the last node points back to the first node.

h. Depth First Search (DFS) uses _____ data structure.

i. A _____ is a linear data structure that follows the First In First Out (FIFO) principle.

j. In a max heap, the _____ element is always at the root.

[Cont....

Part – II

2. Answer the following questions in about 50 words each : [2 x 9

(a) What is the difference between a queue and a stack in terms of data handling ?

(b) What are measures used for the efficiency of the algorithm ?

(c) Differentiate between row major order and column major order with example.

(d) What is a dequeue ?

(e) What is the difference between a directed and an undirected graph ?

(f) Define pivot node in context of AVL search tree.

(g) Differentiate between full binary tree and complete binary tree.

(h) State the application of graph in real life problem solving.

(i) Convert the fcllowing expression in postfix notation.

(P+Q) * ((X+Y)/Z)

[Cont...

Part – III

3. Answer any EIGHT questions in about 250 words each : [5 x 8

(a) A linked list stores student records. Write an algorithm to delete a node containing a given student ID.

(b) Explain tower of Hanoi puzzle with three rods.

(c) Define height balanced tree. Discuss the different types of rotations applied to balance an unbalanced tree.

(d) How a linked list is used for representing polynomial. Explain with the following example.

$3x^6 - 8x^2 + 7x - 12$

(e) Write an algorithm to perform binary search on a list of key values.

(f) How can you represent a sparse matrix efficiently using arrays ?

(g) Construct a binary search tree (BST) using the following values : [50, 30, 70, 20, 40, 60, 80]

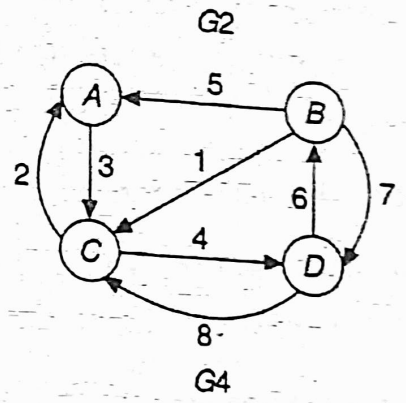
[Cont...

(h) Write recursive algorithms for inorder, preorder, and postorder traversal of a binary tree.

(i) Evaluate the following postfix expression using a stack.

A B C * D / + where A = 4, B = 2, C = 3, D = 6

(j) Discuss different ways of representing a graph in respect to the following example.



Part – IV

Answer any FOUR of the following questions in about 800 words each : [8 x 4

4. a. Write an algorithm to implement bubble sort on a list of key values. [4

[Cont...

b. Sort the following sequence of numbers using bubble sort in ascending order and also show step by step process. [4

56, 21, 92, 10, 34

5. a. Write an algorithm to insert a node at the end of a single linked list. [6

b. State the advantages of linked lists over using array. [2

6. a. Write an algorithm to perform PUSH,POP operations on a stack. [6

b. Discuss the application of queue. [2

7. a. Write an algorithm to insert a node at any position in a double linked list. [6

b. Explain the advantage of circular linked list over linear linked list. [2

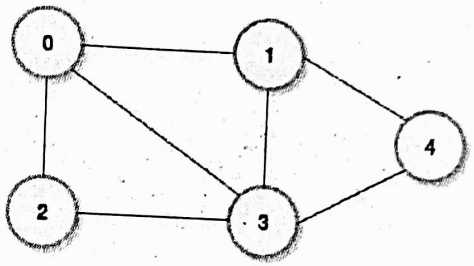
8. a. Construct a binary tree from its given preorder and inorder traversal. [4

Preorder : 1, 2, 4, 5, 7, 3, 6, 8

Inorder : 4, 2.7, 5, 1, 8, 6, 3

[Cont...

b. Discuss step by step traversal of the following graph using breadth first search technique. [4



6. Discuss all tree traversal algorithms in detail.

OR

(a) Construct an expression tree for the following expression.

(A + B) – (((C * D) + F) / G)

(b) Construct a binary tree from its given preorder and inorder traversal.

Preorder : A B D E H C F I J G

Inorder : D B H E A I F J C G

7. Write an algorithm to implement binary search on a list of key values.

OR

Sort the following sequence of numbers using insertion sort in ascending order and also show step by step process.

44, 55, 33, 88, 77, 22, 11, 66

2024

Full Marks - 60

Time - As in the Programme

The figure in the right hand margin indicate marks.
Answer ALL questions.

Group – A

1. Answer all questions : [8 x 1

(a) What is double linked list ?

(b) What is traversal of a linked list ?

(c) Queue is termed as FIFO. Justify the statement.

(d) Define recursion.

(e) What is internal sort ?

(f) How many types of searching techniques are used in data structure ?

(g) Define degree of a node in a tree.

(h) Define binary tree.

Group – B

2. Answer any 8 questions : [8 x 1.5

(a) Explain ADT with example.

(b) What are measures used for the efficiency of the algorithm ?

[Cont...

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(c) What is column major order ?

(d) Convert the following expression in postfix notation.

(A+B) * ((C+D)/E)

(e) Define Priority queue.

(f) Specify all the notations used to represent an arithmetic expression with an example.

(g) State the condition to verify that the queue is empty.

(h) Arrange the following data in lexicographic order.

JAN, FEB, MAR, APR, MAY, JUN, JUL, AUG

(i) When R-R rotation is applied.

(j) Differentiate between full binary tree and complete binary tree.

Group – C

3. Answer any 8 of the following : [8 x 2

(a) Discuss advantages of circular linked list over linear linked list.

(b) Represent the following polynomial using a linked list.

$5x^6 + 12x^2 - 3x + 25$

(c) What are applications of stack ?

(d) Evaluate the following postfix expression using a stack.

A B C * D / + where A = 4, B = 2, C = 3, D = 6

[Cont...

(e) What is Deque ?

(f) What is Divide and Conquer Strategy ? Name the sorting methods based on this technique.

(g) Construct a binary search tree using the following key values.

52, 85, 34, 19, 41, 90

(h) State two properties of a height balanced tree.

(i) Construct a max heap using the following data values.

45, 22, 68, 23, 11, 51

(j) Define siblings with an example.

Group – D

Answer all questions : [4 x 6

4. Explain the various types of data structure used in programming.

OR

Write an algorithm to insert a node at specific location in a single linked list.

5. What do you mean by stack ? Write an algorithm for various operations that can be performed over a stack using array.

OR

Write an algorithm to delete an element from a queue.

[Cont...

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2023

Time :As in Programme

Full Marks : 60

The figures in the right-hand margin indicate marks.

*Answer **all** questions.*

PART-I

1. Fill in the blanks or answer with in one word. 1x8

   a. Give an example of linear data structure.

   b. Stack follows the ____ mode of operation.

   c. Deques has ____ numbers of tail or rear.

   d. Linked List has ____ in the link part of a node.

   e. Expression tree is an example of ____ tree.

   f. To allocate the memory dynamically for linked lists, we can use ____ function in c language.

   g. To check stack overflow, we need to test the condition ____.

   h. Each binary tree has utmost ____ numbers of child nodes.

PART-II

2. Answer any eight within two to three sentences. 1.5x8

   a. What is ADT ?

   b. State the LIFO and FIFO mode of operation.

c. What is Garbage collection ?

d. Is it essential to sort an array before applying the binary search ?

e. What condition to be checked for stack underflow ?

f. What is recursion ?

g. How does the Priority queue work ?

h. What is polish notation ?

i. Give an example of preorder and post order traversal of an expression tree.

j. What is a complete binary tree ?

PART-III

3. Answer any eight of the following (in maximum 75 words.) 2x8

a. What is Time complexity ?

b. Explain various asymptotic notations.

c. How do m-way search trees work ?

d. Why is AVL tree also known as a height balanced tree ?

e. What is a Heap Tree ? How does it work ?

f. Briefly explain, how does radix sort works ?

g. Among the Insertion, Selection and Bubble sort, which is the most efficient and why ?

h. State the sorting algorithm that follows the divide and conquer approach.

i. Briefly explain the insertion operation in an AVL tree.

j. How does a circular queue work ?

PART-IV

Answer within 500 words each. 6x4

4. a. What is Sparse Matrix ? Illustrate one application of sparse matrix with a c program.

OR

b. Suppose two sorted linked list are given to you, then write a c program to combine these two linked lists and the resultant linked list must be in a sorted order.

5. a. Write a program in c language that gives you the solution to the Tower of Hanoi problem for n disks. Test the program using n=4.

OR

b. Write a program in c that implements a queue using a linked list and supports the INSERT and DELETE operation. Test the program using any five integers.

6. a. Write a program in c that implements a stack using arrays and supports the PUSH and POP operations. Test the program using any five integers.

OR

b. Write a program in c that receives 10 integers and sort the elements in ascending order using quick sort.

7. a. Draw a binary tree for the expression : $ax^2 + bx + c$, then write a c program to print the nodes of that binary tree in preorder and postorder.

OR

b. Write a c program to check whether the above binary tree i.e Q. 7(a) is a BST or not.

20/08/24
B.Sc (H) Ex-24
2nd Sem. (Data Structure)

+3-II-S-CBCS(MS)-Sc(H)-Core-IV-Comp.Sc-R&B

2024

Time :As in Programme

Full Marks : 60

The figures in the right-hand margin indicate marks.

*Answer **all** questions.*

PART-I

1. Fill in the blanks. 1x8

   a. In general, the index of the first element in an array is _____.

   b. Minimum number of fields in each node of a doubly linked list is ____.

   c. In a stack, if a user tries to remove an element from an empty stack it is called ____.

   d. A queue follows ____ principle.

   e. The number of edges from the root node to the deepest leaf is called ____ of the tree.

   f. In a max-heap, element with the greatest key is always in the ____ node.

   g. ____ sorting algorithm is the fastest for sorting small arrays ?

   h. Binary search makes use of ____ strategy to search an element.

(Turn Over)

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PART-II

2. Answer any eight within two to three sentences 1.5x8

   a. Assuming int is of 2 bytes, what is the size of int arr[12]; ?

   b. What is a sparse matrix ?

   c. How do you test for an empty queue ?

   d. What is the value of the postfix expression 6 3 2 4 + – * ?

   e. List some applications of queue data structure.

   f. Which data structure suits the most in the tree construction ?

   g. What are the applications of binary tree ?

   h. What is a balance factor in AVL trees ?

   i. Mention the types of searching.

   j. What is meant by linear search ?

PART-III

3. Answer any eight of the following (in maximum 75 words.) 2x8

   a. What is the purpose of dynamic memory management ?

   b. What are the advantages of linked list over an array ?

   c. What are the drawbacks of array implementation of queue ?

   d. Differentiate between stack and queue data structure.

   e. How can AVL tree be useful in all the operations as compared to binary search tree ?

   f. Give the preorder and postorder traversal of the expression tree (a+(b*(c-e))/f).

   g. Differentiate between merge sort and quick sort ?

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h. Is the heap sort always better than the quick sort ? Explain.

PART-IV

Answer within 500 words each. 6x4

4. Write an algorithm to insert a node at the beginning, middle and end of singly list.

OR

Explain different types of dynamic memory management functions with appropriate examples.

5. Explain how an infix expression can be converted to a post-fix expression with an example.

OR

Explain the addition and deletion operations performed on a queue with necessary algorithms.

6. Create a binary search tree for the following numbers (start from an empty binary search tree) :

45, 26, 10, 60, 70, 30, 40 Delete keys 10, 60 and 45 one after the other and show the trees at each stage.

OR

Write recursive algorithms for tree traversal (Inorder, Preorder, Postorder).

7. Explain the working of quick sort on the following data :

10, 15, 0, 17, 20, 25, 30, 16, 70, 6.

OR

Write an algorithm for binary search and discuss its speed compared with linear search.

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II - S - BCA - CC - 4 - (Data Structures) - (R & B)

2024

Full Marks - 60

Time - As in the Programme

The figure in the right hand margin indicate marks.
Answer ALL questions.

Group – A

1. Answer all questions : [8 x 1

(a) What is double linked list ?

(b) What is traversal of a linked list ?

(c) Queue is termed as FIFO. Justify the statement.

(d) Define recursion.

(e) What is internal sort ?

(f) How many types of searching techniques are used in data structure ?

(g) Define degree of a node in a tree.

(h) Define binary tree.

Group – B

2. Answer any 8 questions : [8 x 1.5

(a) Explain ADT with example.

(b) What are measures used for the efficiency of the algorithm ?

[Cont...

(c) What is column major order ?

(d) Convert the following expression in postfix notation.

(A+B) * ((C+D)/E)

(e) Define Priority queue.

(f) Specify all the notations used to represent an arithmetic expression with an example.

(g) State the condition to verify that the queue is empty.

(h) Arrange the following data in lexicographic order.

JAN, FEB, MAR, APR, MAY, JUN, JUL, AUG

(i) When R-R rotation is applied.

(j) Differentiate between full binary tree and complete binary tree.

Group – C

3. Answer any 8 of the following : [8 x 2

(a) Discuss advantages of circular linked list over linear linked list.

(b) Represent the following polynomial using a linked list.

$5x^6 + 12x^2 - 3x + 25$

(c) What are applications of stack ?

(d) Evaluate the following postfix expression using a stack.

A B C * D / + where A = 4, B = 2, C = 3, D = 6

[Cont...

(e) What is Deque ?

(f) What is Divide and Conquer Strategy ? Name the sorting methods based on this technique.

(g) Construct a binary search tree using the following key values..

52, 85, 34, 19, 41, 90

(h) State two properties of a height balanced tree.

(i) Construct a max heap using the following data values.

45, 22, 68, 23, 11, 51

(j) Define siblings with an example.

Group – D

Answer all questions : [4 x 6

4. Explain the various types of data structure used in programming.

OR

Write an algorithm to insert a node at specific location in a single linked list.

5. What do you mean by stack ? Write an algorithm for various operations that can be performed over a stack using array.

OR

Write an algorithm to delete an element from a queue.

[Cont...

6. Discuss all tree traversal algorithms in detail.

OR

(a) Construct an expression tree for the following expression.

(A + B) – (((C * D) + F) / G)

(b) Construct a binary tree from its given preorder and inorder traversal.

Preorder : A B D E H C F I J G

Inorder : D B H E A I F J C G

7. Write an algorithm to implement binary search on a list of key values.

OR

Sort the following sequence of numbers using insertion sort in ascending order and also show step by step process.

44, 55, 33, 88, 77, 22, 11, 66

2025

Time :As in Programme

Full Marks : 100

The figures in the right-hand margin indicate marks.

*Answer **all** questions.*

PART-I

1. Answer all the following Questions in one word. 1x10

   a. Name any two examples Linear Data Structure.

   b. What is the time complexity of binary search.

   c. Name the different ways of representing a graph?

   d. Define depth of a tree.

   e. What is the full form LIFO and FIFO.

   f. Define the term Non Linear Data Structure.

   g. Write any one difference single linked list and double linked list.

   h. What are the postfix and prefix forms of the expression

   A+B*(C-D)/(P-R)

   i. Which sorting algorithm is best if the list is already sorted?

   j. What is the output of selection sort after the 2nd iteration given the following sequence

   16 3 46 9 28 14

PART-II

2. Answer the following question in 50 words each. 2x9

   a. Differentiate between circular double linked list and double linked list.

   b. Differentiate runtime and compile time initialization of an array.

   c. State the syntax of 2D array declaration.

   d. What is postfix notation of the expression

   (e X f) / (g X h)

   e. State two properties of Height Balanced Tree.

   f. Construct a binary search tree using the following key values. 13,6,79,90,67,11,4

   g. Define the term Priority Queue.

   h. State two applications of Queue.

   i. What is B tree?

PART-III

3. Answer any eight questions of the followings in 250 words each. 5x8

   a. What are the different types of data structures? Explain each one in brief.

   b. Construct an expression tree for the following expression

   (a+b*c) + ((d*e+f)*g). Give the outputs when you apply inorder, preorder and postorder traversals.

   c. Write a Program to display the result of multiplication of two 3*3 matrix using array

   d. Write an algorithm to delete node from a double linked list.

   e. Write an algorithm to insert a node after a given node of a single linked list.

   f. Explain the array implementation of queue ADT in detail?

   g. Differentiate between BFS and DFS.

   h. Write an algorithm to insert an element at the end of a queue.

   i. Write an algorithm to delete an element from the beginning of a queue.

   j. Create a binary search tree for the following numbers start from an empty binary search tree.

   45,26,10,60,70,30,40 Delete keys 10,60 and 45 one after the other and show the trees at each stage.

PART-IV

Answer any four of the following in 800 words each. 8x4

4. Write an ADT to implement stack of size N using an array. The elements in the stack are to be integers. The operations to be supported are PUSH, POP and DISPLAY. Take into account the exceptions of stack overflow and stackunderflow.

5. Explain Breadth First Search algorithm with example?

6. Write an algorithm to insert a node at the beginning of list?

7. Explain the various applications of Graphs.

8. Construct a balanced binary search tree using the following nodes jan, feb, mar, apr, may, jun, jul, aug, sep, oct, nov, dec.

I - S - B.Sc. - (ITM) - P - Major - I -
(Data Structure Using C) - (R)

2025

Full Marks - 100

Time - As in the Programme

The figure in the right-hand margin indicates marks

Answer all questions

Part - I

1. Answer the answer of following Questions. [1 × 10 =10

(a) All keywords are defined in which case ?

(b) do..while is a which type of statement ?

(c) Which data structure used to convert infix to postfix notation ?

(d) What is the prefix of A-B/ (C * D ^ E) ?

(e) Which data structure allows deleting data elements from front and inserting at rear ?

(f) Which sorting algorithm used divide-and-conquer method ?

(g) Which type of function calls itself to perform a task ?

(h) Which data structure used to print the natural number in reverse order ?

[Cont...

(i) "Stack is a non-linear data structure". The statement is true or false.

(j) What is the role of a node in a tree ?

Part - II

2. Answer the following in 50 words each. [2 × 9=18

(a) Differentiate linear and non-linear data structure.

(b) What is doubly linked list and how the doubly linked list can be represented ?

(c) What are the applications of stack ?

(d) What is the difference between while loop and do...while loop ?

(e) Explain self- referential structure.

(f) Describe in detail about the command line argument.

(g) Define structure and explain how it is different from union.

(h) Explain binary searching technique.

(i) What is binary tree and write down the properties of binary tree ?

Part - III

3. Answer any eight questions of the following in 250words each. [5 × 8=40

(a) Write a c program to find length of a given string.

(b) What is the difference between a queue and a stack ?

(c) Translate infix expression into its equivalent post fix expression: (A+B^D)/(E- F)+G

(d) Write an algorithm to traverse a linked list.

(e) Explain bubble sort algorithm with example.

[Cont...

(f) Write a program to find out factorial of a number using recursion

(g) Differentiate 1D and 2D array with examples.

(h) Write down the advantages and disadvantages of array over linked list.

(i) Write down the algorithm for push and pop operation.

(j) Draw a heap tree by using max heap property of the given numbers
1000,520,400,450,630,650,300,350

Part - IV

Answer any four of the following Questions in 800 words each. [8 × 4=32

4. What is operator ? What are different types of operators in c explain all with the examples.

5. What is dynamic memory allocation explain briefly with examples ?

6. Write a C program for implementation of Queue using array.

7. Create a binary search tree for the following numbers start from an empty binary search tree. 45,26,10,60,70,30,40,75,100,120,15,200 and show the trees at each stage.

8. What is quick sort ? Explain its techniques with an example.

2022

Full Marks - 50

Time - As in the Programme

The figure in the right hand margin indicate marks

Answer All question.

1. Write the answer of the following questions

a) How to define the structure of double linked list to store the data?

b) How a binary tree is called Threaded binary tree?

c) What is Compaction?

d) How to calculate degree of a node? Explain it with example.

e) What is the postfix operaiton of (A*B+C) - (D/E)?

2. Answer any FIVE of the following questions.

i) Explain different types of data structure with examples.

ii)a) Write a program to add two different 3-dimensional matrixes.

b) Define Pointer. Explain its advantages over array?Write an example how a set of elements are manipulated with pointer.

iii) a) Draw the B-tree of order 5 using following keys. 65, 71, 70, 66, 75,68,72, 77,74, 69, 83, 73, 82, 88, 67, 76, 78, 84, 85, 80.

b) Write an algorithm to store data in a tree.

iv) Write insertion, first-insert, last-insert and deletion algorithm of linked list.

v) a) How arithmetic expressions are evaluated using stack? Explain it with example.

b) Explain linked representation of stack with an example.

vi) Define Queue. How it is represented? Explain inserting and deleting algorithm in a queue. Discuss various applications of queue.

vii) Write down push & pop algorithms and various applications of stack.

viii) Explain pre-order, in-order and post-order tree traversal with their algorithms and example.

***

2022

Full Marks - 60

Time - As in the Programme

The figure in the right hand margin indicate marks

Answer All question.

1. Answer all the questions :

a) What is binary tree?

b) What is the use of queue data structure?

c) What is the maxium number of nodes in a binary tree of height K?

d) Which data structure suits the most in the tree construction?

e) Which data structure is used in BFS algorithm?

f) What is the use of void data type?

g) What is abstract data type?

h) Define the use of POP operation.

2. Answer any EIGHT of the following questions.

a) What is the drawback of array implementation of data structure?

b) List few applications of tree data structure.

c) What is linked list?

d) What are the advantages of dynamic data structure?

e) What is LIFO?

f) Which data structure is used for recursive algorithm?

g) What are the advantages of data structure?

h) What is post fix operation?

3. Answer any Eight of the following questions

a) State the property of B Tree.

b) Write the difference between linear and non-linear data structure?

c) Which data structure is used for pre-fix operation and how?

d) Convert the following infix to post fix operation (a+b) c(c/d) +e.

e) Write the difference between array and stack.

f) What is the use of dequeue?

g) What is AVL Tree? Explain it with an example.

h) Which sorting algorithm is called fastest and why?

4. Answer any Four of the following questions.

i) Explain different types of data structure with examples.

ii) a) Write a program to add two different 3-dimensional matrixes.

b) Define Pointer. Explain its advantages over array? ;Write an example how a set of elements are manipulated with pointer.

iii) Write insertion, first-insert, last-insert and deletion algorithm of linked list.

(iv) a) How arithmetic expressions are evaluated using stack? Explain it with example

b) Explain linked representation of stack with an example.

(v) Define queue. How it is represented? Explain insertin and deleting algorithm in a queue. Discuss various applications of queue.

vi) Write down push & pop algortithms and various applications of stack.

vii) Explain pre-order, in-order and post-order tree traversal with their algorithms and example.

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2020

Full Marks - 50

Time - As in the Programme

The figure in the right hand margin indicate marks

Answer any TWO questions

1. (a) What is time and space complexity? How it is calculated? Is it necessary to measure the above components in the designing of programs? Justify your answer.

b) Explain the features and application of various linear data structure.

OR

c) Define structure. Discuss the syntax of a structure with example. Create a structure input book No., subject, No. of pages and price for five books and print it.

d) What is DMA? How it is implemened? Is it possible to make memory efficient program using pointer. Suggest your views.

2.a) Write an algorithm to delete a node from the last position of single linked list.

b) What is traversing in a linked list? Write an algorithm to print all the values of a linked list.

OR

c) Write an algorithm to merge two different linked lists.

d) Discuss the structure of double linked list with example.

3.a) Convert the following expression to prefix and postfix form.

a - (b* (c+ d/e-f) + g* h

b) What do you mean by Stack? What are the different types of stack operation? Write a program to perform each operation on a stack.

OR

c) Define queue. What are the operations performed in a queue? Write various applications of queue.

d) Define recursion. Discuss various dis-advantaged of recursive function? Write a program to calculate factorial of number using recursion.

4.a) Write algorithms for different order of traversal performed in a binary tree.

b) What is the differfence between tree and binary tree? Define different types of binary trees.

OR

c) Write an algorithm to search a key element in a Binaryh Search Tree.

d) Construct a binary search tree whose preorder traversal is given as follows.

55, 66, 77, 15, 11, 33, 22, 35, 25, 44, 88, 99

5.a) Write an algorithm of binary search operation to search a number from a list.

b) Write a program to sort 10 numbers and print it using quick sort.

OR

c) Explain the concept of storage allocation strategies.

d) Write a program to sort a set of numbers using insertion sort.

2019

Full Marks - 60

Time - As in the Programme

The figure in the right hand margin indicate marks

Answer All question.

Group - A

1. (Answer all questions, Each carries 1 mark)

i) Define the term NonLinear Data Structure.

ii) Differenciate between double linked list and single linked list.

iii) Differenciate runtime and compile time initialization of an array.

iv) State the syntax of 2D array declaration.

v) What is postfix notation of the expression (c/d)* (a+d)?

vi) Define height of a tree.

vii) State two properties of Height Balanced Tree.

viii) Construct a binary search tree using the following key values.

11, 22, 67, 89, 21, 9, 56

ix) Define the term Dequeue.

x) State two applications of Array.

Group-B

(Answer all questions. Each carries 8 marks)

2.a) What are the different types of data structures? Explain each one in brief.

OR

b) Write a C Programme to display the result of addition of two 3*3 matrix using array

3.a) Write an algorithm to delete node from a double linked list.

OR

b) Write an algorithm to insert a node after a given node of a single linked list.

4.a) What do you mean by Stack. What are the different types of stack operation. Write a program to perform each operationon a slack.

OR

b) Define Recursion. Write a program to calculate factorial of a number.

5.a) Write an algorithm to delete an element at the end of queue.

OR

b) Write an algorithm to delete an element from the beginning of a queue.

6.a) Explain the concept of physical implemention of binary tree in memory.

OR

b) Construct a balanced binary search tree using the following nodes jan, feb, mar, apr, may, jun, jul, aug, sep, oct, nov, dec.

2019

Full Marks - 50

Time - As in the Programme

The figure in the right hand margin indicate marks

Answer All question.

1. Write the answer of the following questions.

a) How to calculate degree of a node? Explain it with example.

b) What is the postix operation of (A*B+C) - (D/E)?

c) How to define the structure of double linked list to store the data?

d) How a binary tree is called threaded binary tree?

e) What is Compaction?

2. Explain different types of data structure with examples.

a) WRite a program to add two different 3- dimensional matrix.

b) Define Pointer. Explain its advantages over array? Write an example how a set of elements are manipulated with pointer.

3.a) What is deallocation? How such strategy applied in data structure.

b) Explainboundary tag system in details.

OR

Write insertion, fist-insert, last-insert and deletion algorithm of linked list.

4.a) How arithmetic expressions are evaluated using stack? Explain it with example.

b) Explain linked representaiton of stack with an exmple.

OR

Write down push & pop algorithms and various applications of stack.

5.a) Define queue. How it is represented ? Explain inserting and deleting algorithm in a queue.

b) Discuss various applications of queue.

OR

a) Explain how priority queue used inRound Robin Scheduling.

b) Write down the algorithms used for insertion and deletion in deque?

6. Explain pre-order, in-order and post-order tree traversal with their algorithms and example.

OR

a) Draw the B-tree of order 5 using following keys.

65, 71, 70, 66, 75, 68, 72, 77, 74, 69, 83, 73, 82, 88, 67, 76, 78, 84, 85, 80.

b) Write an algorithm to store data in a tree.

***

2018

Full Marks - 70

Time - As in the Programme

The figure in the right hand margin indicate marks

Answer All question.

1. (a) What are the differences between Static Data Structure and Dynamic Data Structure?

b) What is array? Explain types of array with example.

OR

a) What is Abstract Data types? Explain with example.

b) How to structures are processed? Explain it by Nested structure.

2.a) What is lists? Explain it by using array.

b) What is single linked list? Write a algorithm to insert a node at beginning of Single Linked list.

OR

c) What is Double Linked List? Explain with example.

d) What are the applications of linked list? How linked lsit is advantageous over Array.

3.a) What is stack? What are the uses of stack? Implement stack using linked list.

b) What is Queue? Explain Queue implementation using array.

OR

c) What is tree? Write the algorithm for traversing a Binary Tree.

d) (A + B/C) * (D Λ E) + F. Convert this infix expression into postfix by using stack.

4.a) What is Quick sort? Write the algorithm for Quick sort.

b) What is Merge sort? Sort the following by using merge sort:

9	12	3	57	98	1	37	40

OR

c) What is Heap sort? Explain the algorithm for Heap sort.

d) What is Selection sort? Sort the following using Section Sort

7	3	6	10	24	2	8	23

5.a) What is Searching? Explain the criteria of selecting a search algorithm.

b) Explain High Probability ordering with example

OR

c) What is Hashing? What are the Hashing Techniques? Explain.

d) How collision occurs? Explain the linear probing.

***

2018

Full Marks - 50

Time - As in the Programme

The figure in the right hand margin indicate marks

Answer All question.

1. Answer all the questions :

a) Explain ADT with suitable examples.

b) Evaluate the postfix expression 3, 16, 2, +, *, 12, 6, /, -.

c) What do you mean buy Expression Tree? Give an example of it.

d) List out applications of stack.

e) What are the limitations of arrays in comparisons to the linked lists?

2.a) What is data structure? Explain the objective of data structure. Discuss types of data structure with examples.

b) Write the C code to access the elements of 1D array A having capcity 15.

c) What do you mean by merging of two arrays? Write an algorithm for merging two 1D arrays into single array.

3.a) What is list? Write an algoprithm for creation a single linked list. Also write algorithm for insertion a new node to that SLL at end and at specific position.

OR

b) What do you mean by Double linked list? What is the advantageous of DLL over SLL.

c) List out the applications of linked list. Explain the memory representation of linked list.

4.a) Explain the process of conversion from infix expression to postfix expression using stack.

b) Convert infox to postfix using stack Z+ (Y*X-(W/V^U)*T)*S.

OR

c) Explain the algorithm for quick sort. Sort the elements using quick sort 56, 24, 20, 17, 2.

5.a) Write the algorithm for linked list representation of queue.

b) What is queue? Explain the overflow and underflow conditions of linear queue.

OR

c) What is double ended queue? Explain types of double ended queue with suitable examples.

6.a) In-order traversal : 10, 12, 20, 30, 37, 40, 45

Preorder traversal : 30, 20, 10, 12, 40, 37, 45

Construct BST using the above traversals.

b) What is a tree ? Describe the terminololgies used in tree.

OR

c) Construct the AVL tree by using the keys: 50, 40, 35, 58, 48, 42, 60, 30, 33, 25. Delete 40 after constructing the AVL tree.

***

2018

Full Marks - 60

Time - As in the Programme

The figure in the right hand margin indicate marks

Answer All question.

Group-A

1. a) Explain the physical Implementation of Binary tree.

b) What is Buddy System?

c) Classify Data Structure.

d) What is Heap Tree?

e) Evaluate the postfix expression 5,4,6,+,*,4,9,3,/,+,*.

f) Write down the application of Linked Lists.

g) Define Double Circular Linked list.

h) What do you mean by Expression Tree?

i) Write down the applications of Stack.

j) Define Array.

Group -B

2.a) What is Multi-Dimensional Array? Write a program to enter a 3x3 matrix and display the lower triangula rmatrix.

OR

a) Write a program to multiply two 3x3 matrices

3.a) Perform the following operations in a Single Linked List.

i) Add a node at the beginning of the list

ii) Delete a node from a particular position

OR

a) Perform the following operations in a Circular Linked List.

i) Add a node at the a particular position of the list.

ii) Count total no of nodes present in the list.

4.a) What is Stack? Perform the push, Pop and Traverse Operation.

b) Find out positfix form of the expression (A+B)*(C*D-E)*F/G.

OR

a) What is Recursion? Write a program to calculate factorial of a no using Recursion.

b) Explain Quick sort with example.

5.a) What is Queue? Write algorithms to add and delete element from a queue usign Link List Representation.

OR

a) Explain any two with example

i) Dequeu

ii) Priority Queue

iii) Application of Queue

6.a) Explain any two with example

i) Binary Search Tree

ii) Weighted Binary Tree

iii) Decision Tree

OR

a) Define Linked list representation of a Binary Tree.

b) Explain Insertion, deletion, Traversal Operation on Binardy Tree.

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2022

Full Marks - 50

Time - As in the Programme

The figure in the right hand margin indicate marks

Answer All question.

1. Write the answer of the following questions

a) How to define the structure of double linked list to store the data?

b) How a binary tree is called Threaded binary tree?

c) What is Compaction?

d) How to calculate degree of a node? Explain it with example.

e) What is the postfix operaiton of (A*B+C) - (D/E)?

2. Answer any FIVE of the following questions.

i) Explain different types of data structure with examples.

ii)a) Write a program to add two different 3-dimensional matrixes.

b) Define Pointer. Explain its advantages over array?Write an example how a set of elements are manipulated with pointer.

iii) a) Draw the B-tree of order 5 using following keys. 65, 71, 70, 66, 75,68,72, 77,74, 69, 83, 73, 82, 88, 67, 76, 78, 84, 85, 80.

b) Write an algorithm to store data in a tree.

iv) Write insertion, first-insert, last-insert and deletion algorithm of linked list.

v) a) How arithmetic expressions are evaluated using stack? Explain it with example.

b) Explain linked representation of stack with an example.

vi) Define Queue. How it is represented? Explain inserting and deleting algorithm in a queue. Discuss various applications of queue.

vii) Write down push & pop algorithms and various applications of stack.

viii) Explain pre-order, in-order and post-order tree traversal with their algorithms and example.

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2022

Full Marks - 60

Time - As in the Programme

The figure in the right hand margin indicate marks

Answer All question.

1. Answer all the questions :

a) What is binary tree?

b) What is the use of queue data structure?

c) What is the maxium number of nodes in a binary tree of height K?

d) Which data structure suits the most in the tree construction?

e) Which data structure is used in BFS algorithm?

f) What is the use of void data type?

g) What is abstract data type?

h) Define the use of POP operation.

2. Answer any EIGHT of the following questions.

a) What is the drawback of array implementation of data structure?

b) List few applications of tree data structure.

c) What is linked list?

d) What are the advantages of dynamic data structure?

e) What is LIFO?

f) Which data structure is used for recursive algorithm?

g) What are the advantages of data structure?

h) What is post fix operation?

3. Answer any Eight of the following questions

a) State the property of B Tree.

b) Write the difference between linear and non-linear data structure?

c) Which data structure is used for pre-fix operation and how?

d) Convert the following infix to post fix operation (a+b) c(c/d) +e.

e) Write the difference between array and stack.

f) What is the use of dequeue?

g) What is AVL Tree? Explain it with an example.

h) Which sorting algorithm is called fastest and why?

4. Answer any Four of the following questions.

i) Explain different types of data structure with examples.

ii) a) Write a program to add two different 3-dimensional matrixes.

b) Define Pointer. Explain its advantages over array? ;Write an example how a set of elements are manipulated with pointer.

iii) Write insertion, first-insert, last-insert and deletion algorithm of linked list.

(iv) a) How arithmetic expressions are evaluated using stack? Explain it with example

b) Explain linked representation of stack with an example.

(v) Define queue. How it is represented? Explain insertin and deleting algorithm in a queue. Discuss various applications of queue.

vi) Write down push & pop algortithms and various applications of stack.

vii) Explain pre-order, in-order and post-order tree traversal with their algorithms and example.

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2020

Full Marks - 50

Time - As in the Programme

The figure in the right hand margin indicate marks

Answer any TWO questions

1. (a) What is time and space complexity? How it is calculated? Is it necessary to measure the above components in the designing of programs? Justify your answer.

b) Explain the features and application of various linear data structure.

OR

c) Define structure. Discuss the syntax of a structure with example. Create a structure input book No., subject, No. of pages and price for five books and print it.

d) What is DMA? How it is implemened? Is it possible to make memory efficient program using pointer. Suggest your views.

2.a) Write an algorithm to delete a node from the last position of single linked list.

b) What is traversing in a linked list? Write an algorithm to print all the values of a linked list.

OR

c) Write an algorithm to merge two different linked lists.

d) Discuss the structure of double linked list with example.

3.a) Convert the following expression to prefix and postfix form.

a - (b* (c+ d/e-f) + g* h

b) What do you mean by Stack? What are the different types of stack operation? Write a program to perform each operation on a stack.

OR

c) Define queue. What are the operations performed in a queue? Write various applications of queue.

d) Define recursion. Discuss various dis-advantaged of recursive function? Write a program to calculate factorial of number using recursion.

4.a) Write algorithms for different order of traversal performed in a binary tree.

b) What is the differfence between tree and binary tree? Define different types of binary trees.

OR

c) Write an algorithm to search a key element in a Binaryh Search Tree.

d) Construct a binary search tree whose preorder traversal is given as follows.

55, 66, 77, 15, 11, 33, 22, 35, 25, 44, 88, 99

5.a) Write an algorithm of binary search operation to search a number from a list.

b) Write a program to sort 10 numbers and print it using quick sort.

OR

c) Explain the concept of storage allocation strategies.

d) Write a program to sort a set of numbers using insertion sort.

2019

Full Marks - 60

Time - As in the Programme

The figure in the right hand margin indicate marks

Answer All question.

Group - A

1. (Answer all questions, Each carries 1 mark)

i) Define the term NonLinear Data Structure.

ii) Differenciate between double linked list and single linked list.

iii) Differenciate runtime and compile time initialization of an array.

iv) State the syntax of 2D array declaration.

v) What is postfix notation of the expression (c/d)* (a+d)?

vi) Define height of a tree.

vii) State two properties of Height Balanced Tree.

viii) Construct a binary search tree using the following key values.

11, 22, 67, 89, 21, 9, 56

ix) Define the term Dequeue.

x) State two applications of Array.

Group-B

(Answer all questions. Each carries 8 marks)

2.a) What are the different types of data structures? Explain each one in brief.

OR

b) Write a C Programme to display the result of addition of two 3*3 matrix using array

3.a) Write an algorithm to delete node from a double linked list.

OR

b) Write an algorithm to insert a node after a given node of a single linked list.

4.a) What do you mean by Stack. What are the different types of stack operation. Write a program to perform each operationon a slack.

OR

b) Define Recursion. Write a program to calculate factorial of a number.

5.a) Write an algorithm to delete an element at the end of queue.

OR

b) Write an algorithm to delete an element from the beginning of a queue.

6.a) Explain the concept of physical implemention of binary tree in memory.

OR

b) Construct a balanced binary search tree using the following nodes jan, feb, mar, apr, may, jun, jul, aug, sep, oct, nov, dec.

2019

Full Marks - 50

Time - As in the Programme

The figure in the right hand margin indicate marks

Answer All question.

1. Write the answer of the following questions.

a) How to calculate degree of a node? Explain it with example.

b) What is the postix operation of (A*B+C) - (D/E)?

c) How to define the structure of double linked list to store the data?

d) How a binary tree is called threaded binary tree?

e) What is Compaction?

2. Explain different types of data structure with examples.

a) WRite a program to add two different 3- dimensional matrix.

b) Define Pointer. Explain its advantages over array? Write an example how a set of elements are manipulated with pointer.

3.a) What is deallocation? How such strategy applied in data structure.

b) Explainboundary tag system in details.

OR

Write insertion, fist-insert, last-insert and deletion algorithm of linked list.

4.a) How arithmetic expressions are evaluated using stack? Explain it with example.

b) Explain linked representaiton of stack with an exmple.

OR

Write down push & pop algorithms and various applications of stack.

5.a) Define queue. How it is represented ? Explain inserting and deleting algorithm in a queue.

b) Discuss various applications of queue.

OR

a) Explain how priority queue used inRound Robin Scheduling.

b) Write down the algorithms used for insertion and deletion in deque?

6. Explain pre-order, in-order and post-order tree traversal with their algorithms and example.

OR

a) Draw the B-tree of order 5 using following keys.

65, 71, 70, 66, 75, 68, 72, 77, 74, 69, 83, 73, 82, 88, 67, 76, 78, 84, 85, 80.

b) Write an algorithm to store data in a tree.

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2018

Full Marks - 70

Time - As in the Programme

The figure in the right hand margin indicate marks

Answer All question.

1. (a) What are the differences between Static Data Structure and Dynamic Data Structure?

b) What is array? Explain types of array with example.

OR

a) What is Abstract Data types? Explain with example.

b) How to structures are processed? Explain it by Nested structure.

2.a) What is lists? Explain it by using array.

b) What is single linked list? Write a algorithm to insert a node at beginning of Single Linked list.

OR

c) What is Double Linked List? Explain with example.

d) What are the applications of linked list? How linked lsit is advantageous over Array.

3.a) What is stack? What are the uses of stack? Implement stack using linked list.

b) What is Queue? Explain Queue implementation using array.

OR

c) What is tree? Write the algorithm for traversing a Binary Tree.

d) (A + B/C) * (D Λ E) + F. Convert this infix expression into postfix by using stack.

4.a) What is Quick sort? Write the algorithm for Quick sort.

b) What is Merge sort? Sort the following by using merge sort:

9	12	3	57	98	1	37	40

OR

c) What is Heap sort? Explain the algorithm for Heap sort.

d) What is Selection sort? Sort the following using Section Sort

7	3	6	10	24	2	8	23

5.a) What is Searching? Explain the criteria of selecting a search algorithm.

b) Explain High Probability ordering with example

OR

c) What is Hashing? What are the Hashing Techniques? Explain.

d) How collision occurs? Explain the linear probing.

***

2018

Full Marks - 50

Time - As in the Programme

The figure in the right hand margin indicate marks

Answer All question.

1. Answer all the questions :

a) Explain ADT with suitable examples.

b) Evaluate the postfix expression 3, 16, 2, +, *, 12, 6, /, -.

c) What do you mean buy Expression Tree? Give an example of it.

d) List out applications of stack.

e) What are the limitations of arrays in comparisons to the linked lists?

2.a) What is data structure? Explain the objective of data structure. Discuss types of data structure with examples.

b) Write the C code to access the elements of 1D array A having capcity 15.

c) What do you mean by merging of two arrays? Write an algorithm for merging two 1D arrays into single array.

3.a) What is list? Write an algoprithm for creation a single linked list. Also write algorithm for insertion a new node to that SLL at end and at specific position.

OR

b) What do you mean by Double linked list? What is the advantageous of DLL over SLL.

c) List out the applications of linked list. Explain the memory representation of linked list.

4.a) Explain the process of conversion from infix expression to postfix expression using stack.

b) Convert infox to postfix using stack Z+ (Y*X-(W/V^U)*T)*S.

OR

c) Explain the algorithm for quick sort. Sort the elements using quick sort 56, 24, 20, 17, 2.

5.a) Write the algorithm for linked list representation of queue.

b) What is queue? Explain the overflow and underflow conditions of linear queue.

OR

c) What is double ended queue? Explain types of double ended queue with suitable examples.

6.a) In-order traversal : 10, 12, 20, 30, 37, 40, 45

Preorder traversal : 30, 20, 10, 12, 40, 37, 45

Construct BST using the above traversals.

b) What is a tree ? Describe the terminololgies used in tree.

OR

c) Construct the AVL tree by using the keys: 50, 40, 35, 58, 48, 42, 60, 30, 33, 25. Delete 40 after constructing the AVL tree.

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2018

Full Marks - 60

Time - As in the Programme

The figure in the right hand margin indicate marks

Answer All question.

Group-A

1. a) Explain the physical Implementation of Binary tree.

b) What is Buddy System?

c) Classify Data Structure.

d) What is Heap Tree?

e) Evaluate the postfix expression 5,4,6,+,*,4,9,3,/,+,*.

f) Write down the application of Linked Lists.

g) Define Double Circular Linked list.

h) What do you mean by Expression Tree?

i) Write down the applications of Stack.

j) Define Array.

Group -B

2.a) What is Multi-Dimensional Array? Write a program to enter a 3x3 matrix and display the lower triangula rmatrix.

OR

a) Write a program to multiply two 3x3 matrices

3.a) Perform the following operations in a Single Linked List.

i) Add a node at the beginning of the list

ii) Delete a node from a particular position

OR

a) Perform the following operations in a Circular Linked List.

i) Add a node at the a particular position of the list.

ii) Count total no of nodes present in the list.

4.a) What is Stack? Perform the push, Pop and Traverse Operation.

b) Find out positfix form of the expression (A+B)*(C*D-E)*F/G.

OR

a) What is Recursion? Write a program to calculate factorial of a no using Recursion.

b) Explain Quick sort with example.

5.a) What is Queue? Write algorithms to add and delete element from a queue usign Link List Representation.

OR

a) Explain any two with example

i) Dequeu

ii) Priority Queue

iii) Application of Queue

6.a) Explain any two with example

i) Binary Search Tree

ii) Weighted Binary Tree

iii) Decision Tree

OR

a) Define Linked list representation of a Binary Tree.

b) Explain Insertion, deletion, Traversal Operation on Binardy Tree.

***

(c) Write a program to create a double linked list and print it.

OR

Convert the following infix expression to postfix using stack.

(A+(B*C-(D/E^F)*G)*H)

(d) Write the function in queue to check the queue is full or empty.

OR

Write short notes (answer any TWO) :

(i) Priority Queue

(ii) Representation of Stack using Array

(iii) Pointer Array

(iv) Circular Linked List

II - S - B.Sc. (Comp.Sc.) - Core - IV - (Data Structure)

2023

Full Marks - 60

Time - As in the Programme

The figures in the right hand margin indicate marks.
Answer ALL questions.

1. Answer all the questions : [1 x 8 = 8

(a) Define data structure.

(b) Notations invention are for characterising the _____ behaviour of function.

(c) The function is used to append n characters of S2 to S1. Write the syntax _____.

(d) _____ is the memory management function that can be used for allocating memory during program execution.

(e) Write the syntax to create a block of memory.

(f) Write the three segments of nodes in a double linked list.

(g) Which matrix consists of maximum number of zeros ?

(h) Which type of data structure used in Stack ?

2. Answer any EIGHT of the following questions : [1.5 x 8 = 12

(a) What is double circular linked list ?

(b) Write any two applications of stack.

(c) What is asymptotic notation ?

(d) What is the concept of transpose of sparse matrix ?

(e) Write the two conventions of storing the elements in any matrix in memory.

(f) Write any two string function concepts with their syntax.

(g) What is the prefix form for the following expression: A*B-(C+D)-(E-F)+G/H^I.

(h) What is dequeue ?

(i) Write the definition of complete binary tree.

(j) In how many ways we can traverse a binary tree ? Describe it.

3. Answer any EIGHT of the following questions : [2 x 8 = 16

(a) What is asymptotic notation ? Describe each in brief.

(b) Evaluate the following expression : 2^4+6*2^2-12/4.

[Cont...

(c) Describe different operations of queue.

(d) Explain different terminology used in tree (atleast any four).

(e) How to represent a binary tree into an array ? Explain it with an example.

(f) State the difference between queue and linked list.

(g) What is expression tree ? Explain with example.

(h) Write the rule of binary search tree.

(i) Write any two application of tree.

(j) When a tree is called as strictly binary tree ?

4. Answer any FOUR of the following questions : [6 x 4 = 24

(a) Construct a tree using pre-order and post-order traversal technique.

Preorder-ABDGHKCEF, postorder-GKHDBEFCA

OR

Insert the following nodes in an AVL tree.

55, 66, 77, 15, 11, 33, 22, 35

(b) Write a program in C to create a matrix.

OR

What is linked list ? Describe different types of linked list.

[Cont...

What is AVL Tree ? Discuss the insertion procedure for the following nodes in an AVL tree.

77, 88, 99, 15, 11, 35, 25, 38.

(d) Write a program to sort set of numbers using one of sorted algorithm.

OR

Write short notes (Answer any TWO) :

(i) Priority Queue.

(ii) Space Complexity.

(iii) Linear Search.

(iv) Heap Tree.

II - S - B.Sc. - (ITM) - Code - Core - 4 -
(Data Structure)

2024

Full Marks - 60

Time - As in the Programme

The figure in the right hand margin indicate marks.

Answer ALL questions.

1. Answer all the questions : [1 x 8 = 8

(a) What is Dynamic Memory Allocation ?

(b) Write the three segments of nodes in a double linked list.

(c) Which matrix consists of maximum number of zeros ?

(d) Which type of data structure used in Tree ?

(e) Recursion function is which type of data structure ?

(f) What is sparse matrix ?

(g) What is binary search ?

(h) Define complete binary tree.

2. Answer any EIGHT of the following questions : [1.5 x 8 = 12

(a) Write the structure of node in a linked list.

(b) Write any two applications of queue.

[P.T.O...

(c) What is the concept of transpose matrix ?

(d) What is the prefix form for the following expression :

A * B - (C + D) - (E - F) + G / H ^ I

(e) What is Dequeue ?

(f) What are the advantages of pointer ?

(g) What is the need of writing values of nodes in a structure ?

(h) Which type of searching is faster and why ?

(i) Define circular queue.

(j) What is time complexity ?

3. Answer any EIGHT of the following questions :

[2 x 8 = 16

(a) What is Asymptotic Notation ? Describe each in brief.

(b) Evaluate the prefix expression : a b c + * d e f / - +.

(c) Describe different operations of queue.

(d) Explain different terminology used in tree (atleast any four).

(e) How to represent a binary tree in an array ? Explain it with an example.

(f) State the difference between queue and circular queue.

[Cont...

(g) Find the top value for the following stack operation.

push (8), push (9), pop, push (10), pop, push (10), push (12), push (13), pop, pop.

(h) Write the rule of binary search tree.

(i) Write any two application of tree.

(j) When a tree is called as strictly binary tree ?

4. Answer any FOUR of the following questions :

[6 x 4 = 24

(a) Briefly explain the linked list and its structure. Write the insert, delete and searching algorithm of linked list.

OR

Explain the structure of double linked list. Write an algorithm to add a node at the beginning of the linked list.

(b) Write a program to explain different operations of Queue.

OR

Discuss various operations of stack and its applications.

(c) Explain different traversal techniques of Binary Tree.

OR

[Cont...

2023

Full Marks - 60

Time - As in the Programme

The figures in the right hand margin indicate marks.
Answer ALL questions.

1. Answer all the questions : [1 x 8 = 8

(a) Define linked list.

(b) The overflow condition for queue is _____.

(c) Write the definition of stack with example.

(d) How many minimum no of nodes that a binary tree can have ?

(e) If the size of the stack is 10 and we try to add the 11^{th} element in the stack then the condition is said to be _____.

(f) What is sparse matrix ?

(g) What is linear data structure ?

(h) Define complete binary tree.

2. Answer any EIGHT of the following questions : [1.5 x 8 = 12

(a) Define circular queue.

(b) Explain enqueue() and dequeue().

(c) Define array.

[P.T.O.

(d) Write one infix expression and prefix expression.

(e) Which sorting algorithm is fastest ?

(f) Write the formula to calculate the Row major order.

(g) Write the definition of binary search tree.

(h) Do the parenthesis count for : (a+b) - (c*d).

(i) What is the formula to calculate the balance factor of AVL tree ?

(j) Stack and queue follows which structure ?

3. Answer any EIGHT of the following questions : [2 x 8 = 16

(a) What do you mean by level of the tree ?

(b) What are the categories of AVL tree ?

(c) Draw a complete binary tree and convert it into preorder, postorder and inorder.

(d) Define depth and height of the tree.

(e) Write an algorithm for insertion sort.

(f) Find the top value for the following stack operation : push (5), push (10), pop, push (15), pop, push (20), push (25), pop, pop.

(g) What is non-linear data structure ?

(h) Evaluate the postfix expression : 4 6 2 + * 1 2 3 / -.

(i) What is min heap and max heap ? Write with an example.

(j) Define quick sort and heap sort.

[Cont...

4. Answer any FOUR of the following questions : [6 x 4 = 24

(a) Write an algorithm to insert a node after a given node using single linked list.

OR

Write an algorithm to delete the last node using single linked list.

(b) Convert the following infix expression to prefix : (x*(y+z)/a-b*(c+d/e)).

OR

Write different algorithms to perform various operations on stack.

(c) Define AVL tree. Briefly explain all the rotations of AVL tree with example.

OR

Construct a max heap tree using the following : 20, 33, 16, 77, 45, 92, 25, 10, 8, 64.

(d) Solve the following using quick sort by taking 24 as the pivot node : 24, 9, 29, 14, 19, 27.

OR

Write the algorithm for linear and binary search.

2022

Time :As in Programme

Full Marks : 80

The figures in the right-hand margin indicate marks.

*Answer **all** questions.*

GROUP- A

1. Answer any eight of the following questions. 2.5x8=20

(a) Why is 'listening' an important part of communication ?

(b) What is paralinguistics ?

(c) What is the role of context in communication ?

(d) What is information loss ? How it affects the process of communication ?

(e) Replace the underlined word with a phrasal verb:

(i) The game was cancelled because of bad weather.

(ii) It's been five years since John quit drinking

(f) Do as directed :

(i) Be sure to _____ a life jacket before getting into the boat. (Use the appropriate phrasal verb in the blank)

(ii) The police would not _____ to the kidnapper's demands. (Use the appropriate phrasal verb in the blank)

(g) There were a lot of children _____ the classroom _____ the teacher. (Use the appropriate prepositions in the blanks)

(h) Change the voice:

(i) She showed me a nice portrait

(ii) A thunderstorm often turns milk sour

(i) Change the following word into adjective and use it in a sentence:

(i) Religion

(ii) Space

(j) Correct the error:

(i) My father is thinking that I should stop smoking

(ii) She is married with a plumber who is five years older than her.

GROUP- B

Answer any four of the following questions: 15x4=60

2. Write a note on the process of communication.

OR

What are the different types of communication ? Elaborate with examples.

3. Write a note on the differences between verbal and non-verbal communication.

OR

Show your acquaintance with the different types of communication barriers.

4. Read the following passage carefully and answer the questions that follows:

The expression "an educated person" might be taken to apply to an individual who, being possesed of average intelligence, application and memory, has devoted several years of his or her life to the acquisition of general knowledge. It would not be within such, narrow confines that I should use the expression, since a moment's examination of this definition proves it to be wholly unsatisfactory.

What, for instance, is meant by 'Several years'? Does it mean the years between the ages of five and fourteen, or the years between the ages of five and twenty-one? Assuredly it means nothing of the sort, since a person who ceases to educate himself at any age is not, in my sense of the word, an educated person. Only those can lay claim to that resounding title who continue to learn and learn until they are nailed in their coffins. What, again, is meant by "general knowledge" ? The pedants have assured us that the aim of all higher education is to know something about everything and everything about something. Much as I envy and admire those rare people who are in fact capable of these extremes of erudition, I should regard them, not so much as persons of exceptional education but rather as sports or freaks, akin to lightning calculators, who have been endowed by nature with extraordinary minds. No normal person can possibly know something about everything, and even those who know everything about something become incapable of elastic thought and are contorted into unnatural shapes which recall the masterpieces of the topiarist's art. The normal human being who aspires to be educated should concentrate upon those areas of learning which are attuned to his individual capacities, and should enlarge those areas by becoming acquainted with the wider areas, which surround his own nucleus of knowledge.

(a) What does the expression 'an educated person' mean ?

(b) Why the given definition of 'an educated person' is not satisfactory ?

(c) Who is not an educated person according to the writer ?

(d) What is the aim of our higher education according to the pedants ?

(e) Who are regarded as sports or freaks by the writer ?

(f) What a normal human being, who aspires to be educated, should do ?

5. Write a formal email to your professor requesting him to recommend your name for the job of research assistant at the university.

OR

As a manager of a shopping mall write an email to your product supplier to speed up the supply.

6. Expand the following idea into paragraph

"All good things must come to an end"

OR

"Time and tide waits for none" .

II - S - BCA - AEC - 2 - (English Communication) - (Back) - (2021, 2022 & 2023 AB)

2025

Full Marks - 80

Time - As in the Programme

The figures in the right hand margin indicate marks.

Answer ALL questions.

Group – A

1. Answer all question : [10 x 2 = 20

(a) Discuss the elements of communication ?

(b) What are barriers to effective communication ?

(c) What are the tactics of listening skill ?

(d) What are the disadvantages of non-verbal communication ?

(e) Differentiate synonyms and antonyms with example.

(f) What is the role of grammar in communication ?

(g) What is the difference between oral and written presentation ?

(h) How interviewer is different from interviewee ?

(i) Describe about CV.

(j) Describe about formal letter.

[Cont...

Group – B

Explain any FOUR of the following :

2.(a) Define communication. Explain the process with neat labeling of elements. [7.5

(b) What are the key principles of effective communication ? Discuss how they help in achieving clarity and understanding. [7.5

OR

(c) Write the Different communications, today we are using. [15

3.(a) Define Listening. What are different types of listening ? Explain the process of listening and why it is considered as important of all the skill in communication ? [15

OR

(b) Write the methods and techniques of skimming and scanning. [15

4.(a) ONE word substitution : [5

The study of planets = _____.

One who is unable to pay off one's debts = _____.

A person who eats human flesh = _____.

[Cont...

A person who is not easily pleased = _____.

That which can't be corrected = _____.

(b) Write the Opposite words : [5

Agree, Bold, Construction, Changeable, Best.

(c) Define Sentence. Write types of sentences with examples. [5

OR

(d) Write an essay "Water- The Elixer Life." [15

5.(a) Write the guidelines of official correspondence for making Esquires, complaints and replies. [15

OR

(b) Write a Formal letter for your job. [7.5

(c) What is Interview ? Write the process of interview. [7.5

Part – IV

4. Answer any FOUR of the following in about 800 words each : [8 x 4

(a) What is Communication ? Describe the process of communication.

(b) Explain about various types of communication providing examples of each.

(c) What is Listening Skill ? Describe about informal, critical and empathic listening with providing examples of each.

(d) Discuss the role of Body language in public speaking. How can it be used effectively ?

(e) What is the role of Vocabulary in reading comprehension ? Mention the different steps to improve vocabulary ?

2025

Full Marks - 100

Time - As in the Programme

The figures in the right hand margin indicate marks.

Answer ALL questions.

Part – I

1. Answer all the question in ONE word or ONE sentence each : [1 x 10

(a) What is communication ?

(b) What is the primary purpose of communication ?

(i) To inform (ii) To persuade

(iii) To entertain (iv) All of the above

(c) Define Encoding in Communication.

(d) State about Active Listening.

(e) IPA stands for ?

(f) What is the primary purpose of reading text ?

[Cont...

(g) Which of the following is a key element of effective writing ?

(i) Clarity (ii) Coherence

(iii) Both i and ii (iv) Neither i nor ii

(h) _____ communication involves conveying meaning without using words.

(i) Define Stative Verb.

(j) Give one example of Exclamatory Sentence.

Part – II

2. Answer all the questions in about 50 words each. [2 x 9

(a) Define feedback in communication.

(b) What is Horizontal communication ?

(c) State the purpose of Skimming and Scanning in Reading.

(d) How can you improve your speaking skill ?

(e) Write the IPA symbol of the word "Sat".

(f) How many syllables are there in the word "Institution".

(g) When do we use "Will" and "Would".

(h) Mention the difference between Present simple and Present continuous.

(i) Make Sentences of the following Words "State" and "Report".

[Cont...

Part – III

3. Answer any EIGHT of the following in about 250 words each : [5 x 8

(a) What are the elements of Communication Process ?

(b) Describe about Formal, Semi-formal and Informal Styles of Communication in English.

(c) Explain some common barriers to effective listening.

(d) Mention the importance of Non-verbal communication in public speaking.

(e) What are the different types of Reading Skills ?

(f) Describe the importance of Vocabulary in Reading Comprehension.

(g) State the difference between Active voice and Passive Voice.

(h) How do you use Clauses in sentence structure ?

(i) Differentiate between hearing and listening.

(j) Write the short notes on Simple Sentence and Compound Sentence.

[Cont...

2025

Time :As in Programme

Full Marks : 100

The figures in the right-hand margin indicate marks.

*Answer **all** questions.*

PART-I

1. Answer all the following Questions in one word. 1x10

   a. Name the term for informal sharing of information or gossip within an organisation.

   b. What is the writing technique used to list ideas quickly ?

   c. How many consonant sounds are there in the English language ?

   d. How many aspects are there in a tense ?

   e. What do you call the process of exchanging information using words ?

   f. Which punctuation mark signals a temporary break ?

   g. Who wrote *No Learning without Feeling* ?

   h. Name the subject in the poem *Self-Portrait* by A.K. Ramanujan.

   i. The English word essay is derived from the French term ____.

   j. Who wrote *The Last Ride Together* ?

PART-II

2. Answer the following question in 50 words each. 2x9

   a. Explain the term IPA.

   b. What is bias-free communication ?

   c. What are diphthongs ?

   d. Give examples of rising tone and falling tone.

   e. How do dynamic verbs differ from stative verbs ?

   f. When and why is loud reading recommended ?

   g. How does Dinanath Pathy describe the headmaster of his school ?

   h. Briefly explain what Wordsworth means by the "bliss of solitude" ?

   i. What makes a sad poem a student's favourite ?

PART-III

3. Answer any eight questions of the followings in 250 words each. 5x8

   a. Name and briefly describe the stages of the writing process.

   b. Describe the concepts of coherence and cohesion in writing.

   c. How does the skill gained from reading translate into effective writing ? Explain the relationship between the two activities.

   d. State the differences between literal meaning and metaphorical meaning.

   e. Explain the difference between a simple, compound and complex sentence.

   f. Discuss the role of pre-writing in the overall writing process.

   g. What, according to Montaigne, is the "solitary voice" ?

   h. What miracle happens every morning at the author's desk ?

   i. Why does Robert Browning title the poem as 'The Last Ride Together' ?

   j. Why does Hollander see de-emphasising literature in the school curriculum as a problem ?

PART-IV

Answer any four of the following in 800 words each. 8x4

4. Explain the various factors that determine effective communication including the sender, receiver and channel.

5. Explain with examples from everyday life how grammar and vocabulary are essential for skilful communication.

6. Critically comment on the literary merit, devices and tone used in the poem "When We Two Parted".

7. Describe the different kinds of listening and speaking skills required for effective communication in order to achieve fluency, accuracy and clarity.

8. Write a 15-bit conversation between a teacher and a student on the importance of communication skills in the modern world. The language used should be suitable for a classroom setting. Both the teacher and student should actively engage in the conversation.

(e) Deepak / Diya Mishra of L/105, Nayapalli, Bhubaneswar bought a HP Desk Jet 200 Printer from The Computer Centre, the sole dealer of Hewlett Packard at Master canteen, for use with his/her newly acquired personal computer, a month ago. Now he/ she finds that the print quality is poor and the ink nozzles of the print cartridge get frequently clogged. The printer has been given one year warranty against any technical fault. Write a letter as Deepak/ Diya Mishra to the dealer complaining about the same and requesting him to attend to it.

(f) Recently your college has celebrated Independence Day in the college campus. Draft a report in about 120 words on the celebration of Independence Day to be published in a local Odia Daily.

(g) Discuss Reading Skill and its different methods.

(h) Write a detailed account of English in the Print and Electronic media in India.

II - S - B.Sc. (ITM) - AEC - 2 -
(English Communication)

2023

Full Marks - 80

Time - As in the Programme

The figures in the right hand margin indicate marks.
Answer ALL questions.

1. Answer all the questions : [1 x 12 = 12

(a) They have invited him to the party. (Change the voice.)

(b) Better late than _____. (Complete the proverb with an appropriate word.)

(c) The students (eat) _____ their lunch without a complaint.

(d) Everyone who crosses the border _____ show his / her passport. (must/ should/ can)

(e) Peter _____ (teach) English at the University.

(f) All the _____ is not gold. (glitter / glitters)

(g) He does not believe _____ God. (Write a preposition.)

(h) Mother said, “I am not well today”. (Change the Narration.)

(i) It _____ (rain) for two hours and the ground is too wet.

(j) After unpacking all boxes, the family of Mr. Gupta _____ (set off/ set up/ set on) their house.

(k) Write the synonym of 'Clarify'.

(l) Write the antonym of 'Arrival'.

2. Answer any EIGHT of the following questions : [2 x 8 = 16

(i) Define Communication.

(ii) What is Horizontal Communication ?

(iii) Explain Grapevine Communication ?

(iv) Write accusatory tone in communication.

(v) Write two examples of nonverbal communication ?

(vi) Define Skimming in reading skill.

(vii) What is the use of Officialese ?

(viii) Write two examples of pseudo-cleft sentence.

(ix) Write two examples by using the connector/ word 'as well as' and 'not only__but also'.

(x) Define who is a 'Sender' in communication process ?

3. Answer any EIGHT of the following questions : [3 x 8 = 24

(a) Define Medium of Communication ?

(b) Differentiate between Skimming and Scanning.

[Cont...

(c) What is Active Listening Skill ?

(d) What is Communicative-English in your opinion ?

(e) What is Inter-Cultural communication ?

(f) Define Sympathetic tone with two examples.

(g) Write a short note on Indianization with examples.

(h) Define Jargon with examples.

(i) Define Cohesive Writing.

(j) Write two distinct features of electronic media in India.

4. Answer any FOUR of the following questions : [7 x 4 = 28

(a) Define Communication. Write elements and process of communication.

(b) When does Communication Fail ? Define Barriers of Communication.

(c) Enlist important aspects of a Resume with a sample ?

(d) You have seen an advertisement of job recruitment in an IT sector. You want to apply for the same job. Write a letter to the Manager of that company to apply for the job by attaching all the essential documents with it.

[Cont...

(b) Recently your college has celebrated Republic Day in the college campus. Draft a report in about 120 words on the celebration of Independence Day to be published in a local Odia Daily.

(c) Discuss Reading Skill and its different methods.

(d) Write a detailed account of English in the Print and Electronic media in India.

(e) Define Communication. Write elements and process of communication.

(f) When does Communication fail ? Define Barriers of Communication.

(g) Enlist important aspects of a Resume with a sample ?

(h) You have seen an advertisement of job recruitment in a corporate sector. You want to apply for the same job. Write a letter to the Manager of that company to apply for the job by attaching all the essential documents with it.

23-26 AD
ITM 2nd Batch - 25
24.10.25

2025

Full Marks - 80

Time - As in the Programme

The figure in the right hand margin indicate marks.

Answer ALL questions.

1. Answer all the questions : [1 x 12 =12

(a) Peter _____ (teach) English at the University.

(b) All the _____ is not gold. (glitter / glitters)

(c) He does not believe _____ God. (write a preposition)

(d) They have invited him to the party. (change the voice)

(e) Better late than _____. (complete the proverb with an appropriate word)

(f) The students (eat) _____ their lunch without a complaint.

(g) Everyone who crosses the border _____ show his/ her passport. (must/ should/ can)

(h) Write the synonym of 'Clarify'.

(i) Write the antonym of 'Arrival'.

(j) Mother said, "I am not well today" (change the Narration)

[Cont...

(k) It _____ (rain) for two hours and the ground is too wet.

(l) After unpacking all boxes, the family of Mr. Gupta _____. (set off/ set up/ set on) their house.

2. Answer any EIGHT of the following questions : [2 x 8 = 16

(i) What is the use of Officialese ?

(ii) Write two examples of pseudo-cleft sentence.

(iii) Write two examples by using the connector/word 'as well as' and 'not only but also'.

(iv) What is Horizontal Communication ?

(v) Explain Grapevine communication ?

(vi) Write accusatory tone in communication.

(vii) Write two examples of nonverbal communication ?

(viii) Define Skimming in reading skill.

(ix) Define who is a 'Sender' in communication process ?

(x) Define communication.

3. Answer any EIGHT of the following questions. [3 x 8 = 24

(a) Define Jargon with examples.

(b) Define Cohesive Writing.

[Cont...

(c) What is Communicative-English in your opinion ?

(d) What is Inter-Cultural communication ?

(e) Define Sympathetic tone with two examples.

(f) Write a short note on Indianization with examples.

(g) Define Medium of Communication ?

(h) Differentiate between Skimming and Scanning.

(i) What is Active Listening skill ?

(j) Write two distinct features of electronic media in India.

4. Answer any FOUR of the following questions : [7 x 4 = 28

(a) Soumya / Sampark Miahe of Nayapalli, Bhubaneswar bought a HP Desk Jet 200 Printer from The Computer Centre, the sole dealer of Hewlett Packard at Master canteen, for use with his/ her newly acquired personal computer, a month ago. Now he/ she finds that the print quality is poor and the ink nozzles of the print cartridge get frequently clogged. The printer has been given one year warranty against any technical fault. Write a letter as Deepak/ Diya Mishra to the dealer complaining about the same and requesting him to attend to it.

[Cont...

II - S - BCA - AEC - 2 -

(English Communication) - (R & B)

2024

Full Marks - 80

Time - As in the Programme

The figure in the right hand margin indicate marks.

Answer ALL questions.

Group – A

1. Fill in the blanks : [2 x 8 = 16

(a) Communication is a part of _____ skills.

(b) The response to a sender's message is called _____.

(c) _____ is the method is used to receive information from the sender through a letter.

(d) Our dress code is an example of _____ communication.

(e) The information which is transferred to the receiver has to be interpreted the process is called _____.

[Cont...

(f) The message may be misinterpreted because of _____.

(g) _____ means looking quickly over a text book to get a general superficial idea of the content.

(h) _____ is the person who notices and decodes and attaches some meaning to a message.

2. Write short notes on any FOUR : [4 x 4 = 16

(a) Skimming

(b) Semantic Barrier

(c) Feedback

(d) Group Discussion

(e) Importance of Reading

3. Communication should be audience oriented. Why ? [12

OR

What is 'Barrier' in communication ? Discuss the different types of it and how to overcome.

4. Define Note Making. Explain the different types of Note making process. [12

[Cont...

OR

Write a letter to the Municipal Commissioner to take necessary actions regarding unsanitary conditions in the streets.

5. Differentiate between Interviewer and interviewee. Write the process of interview. [12

OR

Elaborately discuss the process of communication.

6. What is Close Reading ? Elaborately state the different types of reading. [12

OR

Write a paragraph on Digital India.

3. Communication should be audience oriented, why ? [12

OR

What is 'barrier' in communication, discuss the different types of it and how to overcome ?

4. TCS India Ltd. Invites applications for the post of software developer. Write a Resume along with a cover letter for the said post as per the advertisement published in the times of India on 25th March. [12

OR

Write a letter to the editor of the Indian Express highlighting the cause of not to use phone while driving ?

5. Discuss the importance and relevance of communication in Modern times ? [12

OR

Elaborately discuss the process of communication ?

6. Précis writing:- [12
(Any passage of 150 words)

OR

Write a paragraph on your Mobile

2023

Full Marks - 80

Time - As in the Programme

The figures in the right-hand margin indicate marks.

Answer ALL questions.

1. Write whether the following sentences are True or False :- [2 x 8 = 16
   (a) Communication is a two-way process.
   (b) Feedback has no role in communication.
   (c) 'Context' refers to the total setting in which communication takes place.
   (d) Nonverbal signals received by the receiver during the process of communication are more reliable than the verbal message.
   (e) Decoding is done by the sender.
   (f) Fast reading is more beneficial than Slow reading.
   (g) Communication works on the principles of barriers and filters.
   (h) One should put on formal dress for the purpose of attending an interview.
2. Write short notes on any four:- [4 x 4 = 16
   (a) Active listening
   (b) Encoding
   (c) Skimming
   (d) Cross cultural communication
   (e) Feedback

3. Communication should be audience oriented, why ? [12

OR

What is 'barrier' in communication, discuss the different types of it and how to overcome ?

4. TCS India Ltd. Invites applications for the post of software developer. Write a Resume along with a cover letter for the said post as per the advertisement published in the times of India on 25th March. [12

OR

Write a letter to the editor of the Indian Express highlighting the cause of not to use phone while driving ?

5. Discuss the importance and relevance of communication in Modern times ? [12

OR

Elaborately discuss the process of communication ?

6. Précis writing:- [12
(Any passage of 150 words)

OR

Write a paragraph on your Mobile

2023

Full Marks - 80

Time - As in the Programme

The figures in the right-hand margin indicate marks.

Answer ALL questions.

1. Write whether the following sentences are True or False :- [2 x 8 = 16
   (a) Communication is a two-way process.
   (b) Feedback has no role in communication.
   (c) 'Context' refers to the total setting in which communication takes place.
   (d) Nonverbal signals received by the receiver during the process of communication are more reliable than the verbal message.
   (e) Decoding is done by the sender.
   (f) Fast reading is more beneficial than Slow reading.
   (g) Communication works on the principles of barriers and filters.
   (h) One should put on formal dress for the purpose of attending an interview.
2. Write short notes on any four:- [4 x 4 = 16
   (a) Active listening
   (b) Encoding
   (c) Skimming
   (d) Cross cultural communication
   (e) Feedback

(e) Deepak / Diya Mishra of L/105, Nayapalli, Bhubaneswar bought a HP Desk Jet 200 Printer from The Computer Centre, the sole dealer of Hewlett Packard at Master canteen, for use with his/her newly acquired personal computer, a month ago. Now he/ she finds that the print quality is poor and the ink nozzles of the print cartridge get frequently clogged. The printer has been given one year warranty against any technical fault. Write a letter as Deepak/ Diya Mishra to the dealer complaining about the same and requesting him to attend to it.

(f) Recently your college has celebrated Independence Day in the college campus. Draft a report in about 120 words on the celebration of Independence Day to be published in a local Odia Daily.

(g) Discuss Reading Skill and its different methods.

(h) Write a detailed account of English in the Print and Electronic media in India.

II - S - B.Sc. (ITM) - AEC - 2 -
(English Communication)

2023

Full Marks - 80

Time - As in the Programme

The figures in the right hand margin indicate marks.
Answer ALL questions.

1. Answer all the questions : [1 x 12 = 12

(a) They have invited him to the party. (Change the voice.)

(b) Better late than _____. (Complete the proverb with an appropriate word.)

(c) The students (eat) _____ their lunch without a complaint.

(d) Everyone who crosses the border _____ show his / her passport. (must/ should/ can)

(e) Peter _____ (teach) English at the University.

(f) All the _____ is not gold. (glitter / glitters)

(g) He does not believe _____ God. (Write a preposition.)

(h) Mother said, “I am not well today”. (Change the Narration.)

(i) It _____ (rain) for two hours and the ground is too wet.

(j) After unpacking all boxes, the family of Mr. Gupta _____ (set off/ set up/ set on) their house.

(k) Write the synonym of 'Clarify'.

(l) Write the antonym of 'Arrival'.

2. Answer any EIGHT of the following questions : [2 x 8 = 16

(i) Define Communication.

(ii) What is Horizontal Communication ?

(iii) Explain Grapevine Communication ?

(iv) Write accusatory tone in communication.

(v) Write two examples of nonverbal communication ?

(vi) Define Skimming in reading skill.

(vii) What is the use of Officialese ?

(viii) Write two examples of pseudo-cleft sentence.

(ix) Write two examples by using the connector/ word 'as well as' and 'not only__but also'.

(x) Define who is a 'Sender' in communication process ?

3. Answer any EIGHT of the following questions : [3 x 8 = 24

(a) Define Medium of Communication ?

(b) Differentiate between Skimming and Scanning.

[Cont...

(c) What is Active Listening Skill ?

(d) What is Communicative-English in your opinion ?

(e) What is Inter-Cultural communication ?

(f) Define Sympathetic tone with two examples.

(g) Write a short note on Indianization with examples.

(h) Define Jargon with examples.

(i) Define Cohesive Writing.

(j) Write two distinct features of electronic media in India.

4. Answer any FOUR of the following questions : [7 x 4 = 28

(a) Define Communication. Write elements and process of communication.

(b) When does Communication Fail ? Define Barriers of Communication.

(c) Enlist important aspects of a Resume with a sample ?

(d) You have seen an advertisement of job recruitment in an IT sector. You want to apply for the same job. Write a letter to the Manager of that company to apply for the job by attaching all the essential documents with it.

[Cont...

(h) What are the important elements of Note-Taking ?

(i) What are Listening Skills ?

(j) What do you mean by Reading Skills ?

4. Answer any FOUR of the following questions : [7 x 4 = 28

(a) Discuss various types of communication.

(b) Recently your college has been awarded as best college for academic progress of students. Draft a report in about 120 words on the on above said activity which to be published in a local Odia Daily.

(c) Write a news report about Ganesh Puja in your college to The Times of India.

d) Explain in details about reading skills.

(e) Write a notice about holiday for the occasion of Dusshera.

(f) Explain Cohesion in details.

(g) Write a detailed account of English in the Print and Electronic media in India.

(h) Discuss different aspects of a Resume with a sample.

2024

Full Marks - 80

Time - As in the Programme

The figure in the right hand margin indicate marks.
Answer ALL questions.

1. Answer all the questions : [1 x 12 =12

(a) They had hardly gone a few steps that they saw a lion. (Correct the error)

(b) He was tired and _____ asleep immediately. (fall / fell)

(c) The baby (cry) because it is hungry now. (Use the correct form of the verb in the bracket).

(d) The boy jumped off the bus while it was (move). (Use the correct form of the verb in the bracket).

(e) You _____ take a sweater in case it gets cold. (might, could)

(f) She is distantly related _____ my wife. (Use a proper preposition)

(g) Someone was knocking at the door. (Change the voice.)

(h) Write two synonyms of beautiful.

[P.T.O...

(i) I was not helped by her. (Change the voice)

(j) There is _____ English book on my table. (Use a proper preposition)

(k) Newspapers are _____ to people's doors every day. (given, delivered)

(l) I have been working _____ two hours. (for, since)

2. Answer any EIGHT of the following questions :

[2 x 8 = 16

(i) Read the passage and answer the following questions. [2 x 5

About the year 1900, a small, dark-haired boy named Charles Chaplin was often seen waiting outside the back entrances of London theatres. He looked thin and hungry but his blue eyes were determined. He was hoping to get work in show business. He could sing and dance. His parents were music-hall performers and he had been born into the life of the theatre. And, although his own boyhood was painfully hard, he knew how to make people laugh. His own father had died from drinking too much. And his mother was not really able to look after Charles and his older half-brother, Sid. She was often sick in mind and had to be sent to hospital.

(a) The boy Charles Chaplin was _____.

(b) Chaplin thought to get a job in _____.

[Cont...

(c) His parents' were _____.

(d) His father had died due to _____.

(e) The meaning of 'determined' is _____.

(ii) Answer any THREE of the following questions :

[2 x 3

(a) What is Communication ?

(b) What are the elements of Communication ?

(c) What is the process of Communication ?

(d) What is Grapevine Communication ?

(e) What is Verbal Communication ?

(f) What is Diagonal Communication ?

3. Answer any EIGHT of the following questions :

[3 x 8 = 24

(a) Write the reasons of failure of communication.

(b) What do you mean by Inter-Cultural communication ?

(c) What are the barriers of communication ? Explain.

(d) Explain non-verbal communication.

(e) What do you mean by accusatory tone ?

(f) How horizontal communication is different from vertical communication ?

(g) What is Cohesion ? How it is different from Coherence ?

[Cont...

2022

Full Marks - 80

Time - As in the Programme

The figure in the right hand margin indicate marks.

Answer ALL questions.

Group – A

1. Answer ALL questions : [10 x 2 = 20

(a) Discuss the elements of communication ?

(b) What are barriers to effective communication ?

(c) What are the tactics of listening skill ?

(d) What are the disadvantages of non-verbal communication ?

(e) Differentiate synonyms and antonyms with example.

(f) What is the role of grammar in communication ?

(g) What is the difference between oral and written presentation ?

(h) How interviewer is different from interview ?

[P.T.O...

(i) Describe about CV.

(j) Describe about formal letter.

Group – B

Explain any FOUR of the following :

2.(a) Define Communication. Explain the process of communication with its elements. [7.5

(b) How communication is considered as effective communication ? Discuss the basic principles of effective communication. [7.5

OR

(c) Write the different communications, today we are using. [15

3.(a) Define Listening. What are different types of listening ? Explain the process of listening and why it is considered as important of all the skill in communication ? [15

OR

(b) Write the methods and techniques of skimming and scanning. [15

4.(a) One word substitution : [5

The study of planets = _____.

[Cont...

One who is unable to pay off one's debts = _____.

A person who eats human flesh = _____.

A person who is not easily pleased = _____.

That which can't be corrected = _____.

(b) Write the opposite words : [5

Agree, Bold, Construction, Changeable, Best.

(c) Define Sentence. Write types of sentences with examples. [5

OR

(d) Write an essay "Water - The Elixer Life". [15

5.(a) Write the guidelines of official correspondence for making Esquires, complaints and replies. [15

OR

(b) Write a Formal letter for your job. [7.5

(c) What is interview ? Write the process of interview. [7.5

Part – IV

Answer all within 500 words maximum :

4. Describe the energy flow in Eco-system. [7

OR

Describe the source, effects and control of water pollution.

5. Discuss the causes and effects of population growth in India. [7

OR

Write an essay on HIV/AIDS, its prevention, control measures and awareness.

6. Write a note on Environmental Movements in Odisha. [7

OR

Give an account of Women welfare in India.

7. Describe the salient features of the Wild Life Protection Act,1972. [7

OR

Discuss the equitable distribution of natural resources and wealth between rich and the poor countries will lead to sustainable life- styles.

2023

Full Marks - 80

Time - As in the Programme

The figures in the right hand margin indicate marks.

Answer ALL questions.

Part – I

1. Answer the following question with ONE word or fill in the blank : [1 x 12 = 12

(a) The peeling of Ozone Umbrella is mainly caused due to the release of _____ gas into the atmosphere.

(b) Water which is suitable for _____ is called _____ water.

(c) The collection of individuals which belongs to the same species when live together in a region is known as _____.

(d) _____ disease continues for many days and causes _____ on body.

(e) In _____ diseases, microbes cannot be transmitted from infected person to a susceptible person by contact or by any other methods.

[Cont...

Technova NovaDom UNR 2310920600 C4 22L23 07:04 C 2200

(f) Narmada Bachavo Movement is led by _____.

(g) The Central Pollution Control Board (CPCB) is established under _____.

(h) Our society has changed a lot for women as a result of their struggle for _____.

(i) A _____ plays numerous roles in the transmission of knowledge.

(j) The resources that reproduce within a specified time span are _____.

(k) Air is a _____.

(l) A place where animals are protected in their natural habitat is called _____.

Part – II

2. Answer any EIGHT questions within TWO or THREE sentences maximum : [2 x 8 = 16

(a) Define Ecosystem.

(b) What is Biosphere ?

(c) What do you mean by Nitrogen Cycle ?

(d) What is Pollution ?

(e) Give some examples of Non-Communicable Diseases.

(f) What are the objectives of SPCB ?

(g) What are the 4 types of natural resources ?

[Cont...

(h) Differentiate the recyclable, renewable and non-renewable resources.

(i) In your own words, define "Conservation."

(j) Give the full form of ODRAF and NDMA.

Part – III

3. Answer any EIGHT questions within 75 words maximum : [3 x 8 = 24

(a) Describe the scope of environmental science.

(b) Differentiate between Ecology and Ecosystem.

(c) Differentiate between "population explosion and population clock".

(d) Lay out how people's health is negatively impacted by pollution.

(e) Describe the role of women in environment.

(f) Discuss some of the functions of Central Pollution Control Board.

(g) Give the features of Water Act, 1974.

(h) What is meant by Natural Resources and list out the problems associated with natural resources exploitation.

(i) How will you create awareness among people about natural resources ?

(j) How does soil erosion occur ? State your remedy for the same.

[Cont...

(c) Discuss the types of environmental pollution and their effects on human health.

(d) Explain population ecology and the role of different sectors in managing health disasters.

(e) What are the major environmental movements in India ? Explain any two in detail.

(f) Write an essay on Sustainable Development Goals (SDGs) and their global importance.

(g) Describe wildlife management and conservation methods in India.

(h) Discuss the important environmental laws in India and their objectives.

II - S - BCA - MDC - II - (Environmental Education)
(Regular) - (2024 AB, NEP - 2020)

(24-23)/1 Ex-25
BCA 2nd Ex-25
28/10/25

II - S - BCA - MDC - II - (Environmental Education)
(Regular) - (2024 AB, NEP - 2020)

2025

Full Marks - 100

Time - As in the Programme

The figures in the right hand margin indicate marks.

Answer ALL questions.

Part – I

1. Answer all the questions : [1 × 10

(a) What is an Ecosystem ?

(b) What is the full form of "UNEP" ?

(c) Name any one biogeochemical cycle.

(d) What is Air Pollution ?

(e) Define biodiversity.

(f) What is Sustainable Development ?

(g) What is Population Ecology ?

(h) Give one example of a communicable disease.

(i) What is Soil Erosion ?

(j) What is the Lithosphere ?

PART – II

2. Answer all questions. Each question carries 2 marks : [2 × 9

(a) Define atmosphere and hydrosphere.

(b) What are the two main causes of water pollution ?

(c) What is the carbon cycle ?

(d) Explain the term "Noise Pollution."

(e) Write two consequences of climate change.

(f) What are renewable and non-renewable resources ?

(g) Define population growth.

(h) What are non-communicable diseases ? Give examples.

(i) What is soil conservation ?

PART – III

3. Answer any EIGHT questions. Each question carries 5 marks : [5 × 8

A. Describe the components of the environment : atmosphere, hydrosphere, lithosphere and biosphere.

B. Explain the importance and services of biodiversity.

[Cont....

C. What is an Ecosystem ? Describe its structure and functions.

D. Explain the nitrogen cycle with a diagram.

E. Describe various types of environmental pollution.

F. What are the causes and effects of air pollution ?

G. Write short notes on :

(i) Soil Erosion.

(ii) Wildlife Conservation.

H. Explain the concept of sustainable development and its main goals.

I. Discuss the causes and control measures of population growth.

J. Write short notes on :

(i) Communicable Diseases.

(ii) Non-communicable Diseases.

PART – IV

4. Answer any FOUR questions. Each question carries 8 marks : [8 × 4

(a) Discuss in detail the major ecosystems and their significance.

(b) Explain the causes and consequences of climate change and suggest preventive measures.

[Cont....

2022

Full Mark – 80

Time – As in Programme

The figures in the right hand margin indicate marks.

Answer all questions

Part-I

Answer all the following questions: **[12 x 2 = 24]**

1. What is Ecological pyramid?
2. Name a key person linked to chip ko movement.
3. Define carbon footprint?
4. What is CNG?
5. What is AIDS?
6. What are the sources of Noise Pollution?
7. Define Sustainable Development?
8. What are the pollutants from vehicular exhaust?
9. What is the concept of rain water harvesting?
10. Define Biodiversity?
11. Write the role of value education in environmental management?
12. What is the significance of Red Data book?

Part-II

Answer the following questions (Any Eight): **[8 x 3 = 24)**

1. What are the effects of radiation pollution?
2. What are the greenhouse gases and their effect?
3. What are the causes and effects of global warming?
4. What are the steps taken towards sustainable development?
5. Write a note on NDMA in India?
6. What are the preventive measures of a pandemic situation?
7. Briefly describe communicable diseases?
8. What is herd immunity?
9. Differentiate between Biotic factors & Abiotic factors.
10. What are the functions of CPCB?

[Cont….

Part-III

Answer the following questions: **[4 x 8 =32]**

1. Describe broadly the structure & composition of atmosphere? Mention the role of stratosphere in the atmosphere?

OR

Write a note on biogeochemical cycling of Nitrogen.

2. What are causes and effect Water pollution? How to control the water pollution?

OR

Explain different modes of contact of communicable diseases and non-communicable diseases? What are the steps to be taken prevent disease transmission?

3. What is Agenda 21? Write a note on sustainable development goals?

OR

What is Disaster Management cycle? Explain various stages of disaster management.

4. Describe various provisions laid down in the Environment (protection) Act, 1986 to control Environmental pollution. Why this Act is called Umbrella Act of Environmental Management?

OR

Explain energy flow in the Ecosystem? How ecosystem is conceptualized as a open the thermodynamic system.

2022

Full Mark – 70

Time – As in Programme

The figures in the right hand margin indicate marks.

The questions are of equal value.

Part-I

Question No. 1 is compulsory: **[5 x 2]**

1. **Read the extracts from the text and answer the questions that follow:**

   One cannot be truly human and civilized unless one looks upon not only all fellow-men but all creation with the eyes of a friend. Throughout India, edicts carved on rocks and iron pillars are reminders that 22 centuries ago emperor Ashoka defined a King's duty as not merely to protect citizens and punish wrong-doers but also to preserve animal life and forest trees. Ashoka was the first and perhaps the only monarch until very recently, to forbid the killing of a large number of species of animals for support or food, foreshadowing some of the concerns of this Conference. He went further, regretting the carnage of his military conquests and enjoying upon his successors to find "their only pleasure in the peace that comes through righteousness".

   It is said that in country after country after country, progress should became synonymous with assault on nature. We, who are a part of nature and dependent on her for every need, speak constantly about "exploiting" nature. When the highest mountain in the world was claim in 1953, Jawaharlal Neheru objected to the phrase "conquest of Everest" which he thought was arrogant. Is it surprising that this lack of consideration and the constant need to prove one's superiority should be projected on to our treatment of our fellow-men? I remember Edward Thompson, a British writer and a good friend of India, once telling Mr. Gandhi that wildlife was fast disappearing. Remarked the Mahatma- it is decreasing in the jungles but is increasing in the towns!"

Questions:

a) How did Ashoka define a King's duty?

b) Why is Ashoka unique as a monarch?

c) Is progress beneficial to nature? Which expression in the passage tells you so?

d) Why did Neheru object to the phrase "Conquest of Everest"?

e) What was the Thompson's remark on wildlife? What was Gandhiji's comment on it?

Cont…

Part-II

Answer only six questions from 2 to 10: **[6 x 10]**

2. ‘Importance of Communicative English for Technical Students.’ Discuss.
3. What do you mean by communication? Discuss the types of communication.
4. Discuss the importance of silence in communication.
5. What are the uses of communication?
6. Write a dialogue between two monkeys meeting in a park.
7. Prepare at least 10 questions which you expect in an interview.
8. Write short notes on:

   (a) Kinesics, (b) Haptics, (c) Paralinguistic, (d) Grapevine Communication
9. Prepare certain do’s and don’ts for a GD.
10. Prepare an Annual Report of Utkal University for the Convocation next year.

i. Write about Polavaram Movement.
ପୋଲାଭରମ୍ ଆନ୍ଦୋଳନ ବିଷୟରେ ଲେଖ ।

j. Write different functions of state pollution control board.
ରାଜ୍ୟ ପ୍ରଦୂଷଣ ନିୟନ୍ତ୍ରଣ ପରିଷଦର କାର୍ଯ୍ୟଗୁଡ଼ିକୁ ଲେଖ ।

PART-IV

Answer any four of the following in 800 words each. 8x4
ନିମ୍ନଲିଖିତ ସମସ୍ତ ପ୍ରଶ୍ନର ଉତ୍ତର ୮୦୦ ଶବ୍ଦରେ ଦିଅ ।

4. Discuss values and services of Biodiversity.
ଜୈବ ବିବିଧତାର ମୂଲ୍ୟବୋଧ ଓ ସେବାଗୁଡ଼ିକୁ ଆଲୋଚନା କର ।

5. What is Radiation pollution ? Discuss causes & effects of radiation.
ବିକିରଣ ପ୍ରଦୂଷଣ କ'ଣ ? ବିକିରଣ ପ୍ରଦୂଷଣର କାରଣ ଓ ପ୍ରଭାବଗୁଡ଼ିକୁ ଆଲୋଚନା କର ।

6. What are problems of conservation of Natural Resources ? Discuss different methods of conservation of Natural Resources.
ପ୍ରାକୃତିକ ସମ୍ବଳର ସଂରକ୍ଷଣର ସମସ୍ୟାଗୁଡ଼ିକ କ'ଣ ? ପ୍ରାକୃତିକ ସମ୍ବଳର ସଂରକ୍ଷଣର ଉପାୟଗୁଡ଼ିକୁ ଆଲୋଚନା କର ।

7. Discuss role of different sector in managing health disaster.
ସ୍ୱାସ୍ଥ୍ୟ ବିପର୍ଯ୍ୟୟ ପରିଚାଳନାରେ ବିଭିନ୍ନ ବିଭାଗର କାର୍ଯ୍ୟଗୁଡ଼ିକୁ ଆଲୋଚନା କର ।

8. Discuss briefly different environmental movements in Odisha.
ଓଡ଼ିଶାରେ ବିଭିନ୍ନ ପରିବେଶ ଆନ୍ଦୋଳନଗୁଡ଼ିକୁ ସଂକ୍ଷେପରେ ଆଲୋଚନା କର ।

2025

Time :As in Programme

Full Marks : 100

The figures in the right-hand margin indicate marks.

*Answer **all** the questions*

(Environmental Education)

PART-I

1. Answer all questions. 1x10
ସମସ୍ତ ପ୍ରଶ୍ନର ଉତ୍ତର ଦିଅ ।

a. What is the meaning of atmosphere ?
ବାୟୁମଣ୍ଡଳର ଅର୍ଥ କ'ଣ ?

b. The term "Lithosphere" is derived from ____ & ____ Green words.
ଲିଥୋସ୍ଫିୟର ଶବ୍ଦଟି ଗ୍ରୀକ୍ ଭାଷା ____ ଏବଂ ____ ଶବ୍ଦରୁ ଆନୀତ ହୋଇଛି ।

c. $N_2 + O_2$ is ____.
ଯବକ୍ଷାରଜାନ + ଅମ୍ଳଜାନ = ____ ଅଟେ ।

d. The unit of noise pollution.
ଶବ୍ଦ ତୀବ୍ରତାର ଏକକ ____ ଅଟେ ।

e. Kanjirange wildlife conservation is situated in which state ?
କାଞ୍ଜିରଙ୍ଗା ବନ୍ୟଜନ୍ତୁ ସଂରକ୍ଷଣ କେଉଁ ରାଜ୍ୟରେ ଅବସ୍ଥିତ ?

f. Write the formula of population density.
ଜନସଂଖ୍ୟାର ଘନତ୍ୱ ମାପିବାର ସୂତ୍ର ଲେଖ ।

g. ____ date is observed as world population days.

____ ତାରିଖକୁ ବିଶ୍ୱ ଜନସଂଖ୍ୟା ଦିବସ ରୂପେ ପାଳନ କରାଯାଏ ।

h. ____ organ of body controls sugar level of an individual.

____ ଶରୀରର ଶର୍କରା ସ୍ତରକୁ ନିୟନ୍ତ୍ରଣ କରିଥାଏ ।

i. In which year state population control Board was organised in each state.

ରାଜ୍ୟ ପ୍ରଦୂଷଣ ନିୟନ୍ତ୍ରଣ ପରିଷଦ କେଉଁ ମସିହାରେ ପ୍ରତ୍ୟେକ ରାଜ୍ୟରେ ଗଠନ କରାଯାଇଥିଲା ।

j. The wildlife protection Act was introduce in India in which year ?

ଭାରତବର୍ଷରେ ବନ୍ୟପ୍ରାଣୀ ସଂରକ୍ଷଣ ଆଇନ କେଉଁ ମସିହାରେ ପ୍ରଣୀତ ହୋଇଥିଲା ?

PART-II

2. Answer the following question in 50 words each. 2x9

ନିମ୍ନଲିଖିତ ପ୍ରଶ୍ନଗୁଡ଼ିକର ଉତ୍ତର ୫୦ଟି ଶବ୍ଦରେ ଦିଅ ।

a. What is the meaning of Hydrosphere ?

ଜଳମଣ୍ଡଳର ଅର୍ଥ କ'ଣ ?

b. Write the constitutions of soil.

ମୃତ୍ତିକାର ଉପାଦାନଗୁଡ଼ିକୁ ଲେଖ ।

c. Write different types of microbes.

ଅଣୁଜୀବମାନଙ୍କର ବିଭକ୍ତିକରଣ ଲେଖ ।

d. What is Radiation ?

ବିକିରଣର ଅର୍ଥ ଲେଖ ।

e. What are different types of partical pollution.

କଣିକା ପ୍ରଦୂଷଣର ପ୍ରକାରଭେଦଗୁଡ଼ିକୁ ଲେଖ ।

f. Write any two green house effect.

ସବୁଜ ଗୃହର ୨ଟି ପ୍ରଭାବ ଲେଖ ।

g. Write any two effects of soil erosion.

ମୃତ୍ତିକା ଲୟର ଯେକୌଣସି ୨ଟି ପ୍ରଭାବ ଲେଖ ।

h. What is 'Chipko Movement' ?

ଚିପ୍‌କୋ ଆନ୍ଦୋଳନ କ'ଣ ଅଟେ ?

i. Write any two objectives of Environment protection Act - 1986.

ପରିବେଶ ସୁରକ୍ଷା ଆଇନ (୧୯୮୬)ର ଯେକୌଣସି ୨ଟି ଉଦ୍ଦେଶ୍ୟ ଲେଖ ।

PART-III

3. Answer any eight questions of the followings in 250 words each. 5x8

ନିମ୍ନଲିଖିତ ଯେକୌଣସି ଆଠଟିର ଉତ୍ତର ୨୫୦ ଶବ୍ଦରେ ଦିଅ ।

a. Explain water cycle.

ଜଳଚକ୍ରକୁ ବୁଝାଅ ।

b. Write different classifications of organisms based on Habitat.

ପରିସ୍ଥାନ ଅନୁଯାୟୀ ଜୀବମାନଙ୍କର ଶ୍ରେଣୀବିଭାଗ ଲେଖ ।

c. Discuss different types of Ecosystem.

ବିଭିନ୍ନ ପ୍ରକାର ପରିସଂସ୍ଥାଗୁଡ଼ିକୁ ଆଲୋଚନା କର ।

d. Write sources of water pollution.

ଜଳ ପ୍ରଦୂଷଣର ଉତ୍ସଗୁଡ଼ିକୁ ଲେଖ ।

e. Write causes of soil pollution.

ମୃତ୍ତିକା ପ୍ରଦୂଷଣର କାରଣଗୁଡ଼ିକୁ ଲେଖ ।

f. State the effects of Noise pollution.

ଶବ୍ଦ ପ୍ରଦୂଷଣର ପ୍ରଭାବଗୁଡ଼ିକୁ ଲେଖ ।

g. Write the causes of Non communicable diseases.

ଅଣସଂକ୍ରାମକ ରୋଗର କାରଣଗୁଡ଼ିକୁ ଲେଖ ।

h. What are the general symptoms & effects of diabetes disease.

ମଧୁମେହ ରୋଗର ସାଧାରଣ ଲକ୍ଷଣ ଓ ଏହାର ପ୍ରଭାବଗୁଡ଼ିକୁ ଲେଖ ।

2023

Time :As in Programme

Full Marks : 80

The figures in the right-hand margin indicate marks.

*Answer **all** questions.*

PART-I

1. Fill in the blanks. 1x12

ଶୂନ୍ୟସ୍ଥାନ ପୂରଣ କର ।

a. The study of human population is called ____.
ମନୁଷ୍ୟ ଜନସଂଖ୍ୟା ପଠନକୁ ____ କୁହାଯାଏ ।

b. The influenza virus chiefly transmited by ____.
ଇନ୍‌ଫ୍ଲୁଏଞ୍ଜା ଭୂତାଣୁ ମୁଖ୍ୟତଃ ____ ଦ୍ୱାରା ସଞ୍ଚାରିତ ହୋଇଥାଏ ।

c. The daily atmospheric condition of an area is called as ____.
ଗୋଟିଏ ଅଞ୍ଚଳର ବାୟୁମଣ୍ଡଳର ଦୈନନ୍ଦିନ ଅବସ୍ଥାକୁ ____ କୁହାଯାଏ ।

d. The ____ remain at the base of a pyramid of energy.
ଶକ୍ତିର ପିରାମିଡ୍‌ରେ ତଳ ସ୍ତରରେ ____ମାନେ ଅବସ୍ଥାନ କରୁଛନ୍ତି ।

e. The chief contributor gases of acid rain are ____ and ____.
ଅମ୍ଳବର୍ଷାର ମୁଖ୍ୟ ବାଷ୍ପଗୁଡ଼ିକ ହେଲା ____ ଏବଂ ____ ।

f. The Water Act was enacted in the year of ____.
ଜଳ ପ୍ରଦୂଷଣ ଆଇନ ____ ମସିହାରେ ପ୍ରଣୟନ ହୋଇଥିଲା ।

g. Rhizobium remains symbiotic in the roots of ____ crops.
ରାଇଜୋବିଅମ୍ ବ୍ୟାକ୍ଟେରିଆ ____ ଗଛର ଚେରରେ ସହଜୀବୀ ଭାବରେ ସ୍ଥାପନ କରେ ।

h. The wildlife protection Act enacted in the year of ____.
ବନ୍ୟପ୍ରାଣୀ ସୁରକ୍ଷା ଆଇନ ____ ମସିହାରେ କାର୍ଯ୍ୟକାରୀ ହୋଇଥିଲା ।

i. Both fog and smoke form ____ in the atmosphere.
ବାୟୁମଣ୍ଡଳରେ ଧୂଆଁ ଓ କୁହୁଡ଼ି ମିଶ୍ରଣରେ ____ ସୃଷ୍ଟି ହୁଏ ।

(Turn Over)

j. The KYOTO protocol is about the reduction of ____.
କିୟୋଟୋ ପ୍ରୋଟୋକଲ୍/ମୁସାବିଦ୍ ____ର ହ୍ରାସ ବିଷୟରେ ଗଠିତ ହୋଇଥିଲା ।

k. The Chernobyl disaster is associated with ____ pollution.
ଚେର୍ନୋବିଲ ବିପର୍ଯ୍ୟୟ ____ ପ୍ରଦୂଷଣ ସହିତ ଜଡ଼ିତ ।

l. Ban on single use polythene restricts polyethene bags below ____ of thickness.
____ ଠାରୁ କମ୍ ମୋଟେଇ ଥିବା ଏକକ ବ୍ୟବହାର ପ୍ଲାଷ୍ଟିକ୍ ବ୍ୟବହାର ଉପରେ କଟକଣା ଅଛି ।

PART-II

2. Answer any eight of the following within two to three sentences each. 2x8
ନିମ୍ନଲିଖିତ ଯେକୌଣସି ଆଠଟିର ଉତ୍ତର ଦୁଇ ବା ତିନୋଟି ବାକ୍ୟରେ ଦିଅ ।

a. Sanitization
ବିଶୋଧନ

b. Food chain
ଖାଦ୍ୟ ଶୃଙ୍ଖଳ

c. Soil pollution
ମୃତ୍ତିକା ପ୍ରଦୂଷଣ

d. Earth summit
ବିଶ୍ୱ ଶିଖର ସମ୍ମିଳନୀ

e. Carbon foot print
ଅଙ୍ଗାର ପାଦଚିହ୍ନ

f. IMD
ଆଇଏମ୍‌ଡି

g. Survival skills during lightening
ବିଜୁଳି ମାରିବା ସମୟର ନୈପୁଣ୍ୟତା

h. Role of Revenue Department in flood management
ବନ୍ୟା ପରିଚାଳନାରେ ରାଜସ୍ୱ ବିଭାଗର ଭୂମିକା

i. Pandemic disease
ବିଶ୍ୱ ମହାମାରୀ

j. Sustainable development
ପରିପୋଷଣକାରୀ ବିକାଶ

PART-III

3. Answer any eight of the following within 75 words each. 3x8
ନିମ୍ନଲିଖିତ ଯେକୌଣସି ଆଠଟିର ଉତ୍ତର ୭୫ ଶବ୍ଦରେ ଦିଅ ।

a. Ecosysem
ପରିସଂସ୍ଥା

b. Water cycle
ଜଳଚକ୍ର

c. Sound pollution
ଶବ୍ଦ ପ୍ରଦୂଷଣ

d. Anthropogenic causes of global warming
ବିଶ୍ୱତାପନର ମନୁଷ୍ୟକୃତ କାରଣଗୁଡ଼ିକ

e. Flood disaster
ବନ୍ୟା ବିପର୍ଯ୍ୟୟ

f. Earthquake
ଭୂମିକମ୍ପ

g. Corporate Social Responsibility
ଶିଳ୍ପ ସଂସ୍ଥାମାନଙ୍କର ସାମାଜିକ ଦାୟିତ୍ୱବୋଧ

h. Balanced diet
ସନ୍ତୁଳିତ ଆହାର

i. Quarantine
କ୍ୱାରେନ୍‌ଟାଇନ୍

j. National Health Mission
ଜାତୀୟ ସ୍ୱାସ୍ଥ୍ୟ ମିଶନ

PART-IV

Answer all the following within 500 words each. 7x4
ନିମ୍ନଲିଖିତ ସମସ୍ତ ପ୍ରଶ୍ନର ଉତ୍ତର ୫୦୦ ଶବ୍ଦରେ ଦିଅ ।

4. Describe the components and usefulness of atmosphere.
ବାୟୁମଣ୍ଡଳର ଉପାଦାନ ଓ ଉପକାରିତା ସମ୍ବନ୍ଧରେ ବର୍ଣ୍ଣନା କର ।

OR/କିମ୍ବା

Discuss the causes, effects and control measures of air pollution.
ବାୟୁ ପ୍ରଦୂଷଣର କାରଣ, ପ୍ରଭାବ ଏବଂ ନିୟନ୍ତ୍ରଣ ଉପାୟଗୁଡ଼ିକ ଆଲୋଚନା କର ।

5. Explain, in brief, the effects of population explosion and the methods adopted to control population growth.
ଜନସଂଖ୍ୟା ବିସ୍ଫୋରଣର ପ୍ରଭାବ ଏବଂ ଏହାକୁ ନିୟନ୍ତ୍ରଣ କରିବା ପାଇଁ ଅବଲମ୍ବନ ପଦ୍ଧତିଗୁଡ଼ିକ ସଂକ୍ଷେପରେ ବ୍ୟାଖ୍ୟା କର ।

OR/କିମ୍ବା

Discuss the different steps taken by government for a sustainable development.
ପରିପୋଷଣକାରୀ ବିକାଶ ପାଇଁ ସରକାର ନେଇଥିବା ପଦକ୍ଷେପଗୁଡ଼ିକ ଆଲୋଚନା କର ।

6. Discuss the organization, functions and a few success stories of NDRF or ODRAF.
NDRF କିମ୍ବା ODRAFର ସଙ୍ଗଠନ, କାର୍ଯ୍ୟ ଓ କେତୋଟି ସଫଳ କାହାଣୀ ଆଲୋଚନା କର ।

OR/କିମ୍ବା

Give an account of survival skills adopted during and post-disaster periods of cyclone and fire.
ଘୂର୍ଣ୍ଣିବାତ୍ୟା ଓ ଅଗ୍ନି ବିପର୍ଯ୍ୟୟରୁ ବଞ୍ଚିରହିବା ନୈପୁଣ୍ୟ ଏବଂ ଏହା ପରବର୍ତ୍ତୀ କାର୍ଯ୍ୟପନ୍ଥା ଉପରେ ରେଖାପାତ କର ।

7. Discuss the different approaches of life style management for maintaining a good health.
ଏକ ସୁନ୍ଦର ସୁସ୍ଥ ଜୀବନ ପାଇଁ ଆବଶ୍ୟକ ବିଭିନ୍ନ ଜୀବନଚର୍ଯ୍ୟା ପରିଚାଳନା ଉପରେ ଆଲୋଚନା କର ।

OR/କିମ୍ବା

Explain three non-communicable diseases with their causes and effects.
ତିନିଗୋଟି ଅଣ-ସଂକ୍ରାମକ ରୋଗର କାରଣ ଏବଂ ପ୍ରଭାବଗୁଡ଼ିକ ବ୍ୟାଖ୍ୟା କର ।

2018

Full Marks - 80

Time - As in the Programme

The figure in the right hand margin indicate marks

Answer All question.

Group-A

1. (a) Define photochemical smog.

b) Explain cyclone management

c) How does earthqueak occurs.

d) What are the important aspects of sustainable development?

e) What are the important causes of climate change?

f) What is Green Hosue Effect?

g) Define population density?

h) What is full form of HIV & AIDS?

i) What are the causes of ozone layer depletion?

j) Define Lmmigration?

Group - B

2. a) Explain the four spheres of present above Earth surface.

b) Explain Nitrogen Cycle.

OR

a) Explain any Two :-

i) Carbon Cycle

ii) Ecology

iii) Ecosystem

3. a) What is Pollution? Explain causes and effects of Air Pollution.

b) Explain different type of Natural Disasters and write donw methods to manage these situations.

OR

a) Explain causes and effects of any two Polluctions.

i) Thermal Pollution

ii) Noise Pollution

iii) Soil Pollution

4. a) Explain Urbanization and how its affects to the environment?

b) Defien the terms like ‘Species’ & ‘Community”

OR

Explain different Communicable Diseases . Also describe its transmission methods and how to control such Diseases.

5. a) Explain diffeent Environemntal movements in India and also in Odisha.

OR

a) Explain followings

i) Central pollution Control Board.

ii) Role of Women in Environmental Movements.

6.a) What is Natural Resources? Explain different Natrual REsources and why do we need to conserve all the these REsources?

OR

b) Explain any TWo :-

i) Water Act

ii) The Wildlife Act

iii) Environmental Protection

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2022
Full Marks - 60
Time - As in the Programme
Sub: Atomic Structure, Bonding, General Organic Chemistry & Aliphatic Hydrocarbons
The figure in the right hand margin indicate marks
Answer All question.

Part-I
(Answer all questions)

1. Answer the following question with ONE word or fill in the blank.

a) _____and _____are two examples of greenhouse gases?

b) The lower part of atmosphere is called_____?

c) Presently, there are_____numbers of notified biosphere reserve in India?

d) _____is the macro and _____is the micro nutrient present in soil.

e) Harmful algal blooms and fish kills i the water bodies are the results of a process called_____

f) Which UN agency works for the welfare of children?

g) Who heads the central pollution control board (CPCB) meeting?

h) Name a key person linked to Narmada Bachao Andolan?

i) What is AIDS stands for?

j) _____are those resources which we are not extracting at present despite technological availability.

k) NDMA stands for_____

l) _____is an example of exnaustible resource.

Part-II

2. Answer any EIGHT questions within TWO or THREE sentences maximum

a) Define Ecological Pyramid?

b) What is genetic effect of nuclear radiation?

c) Write two effects of global warming?

d) What is the signficance of Red Data book?

e) What is mutualism in environmental science?

f) Write two objectives of SPCB?

\g) What is Buffer Zone?

h) Differentiate between Hazard and Disaster?

i) What are the causes of soil erosion?

j) Differentiate between epidemic and pandemic diseases?

Part-III

3. Answer any EIGHT questions within 75 words maximum

a) Explain the term “Ozoe Layer Depletion”?

b) Write on three scopes of environemntal study?

c) Define the term population density, and populatin distribution?

d) What are the features of K-species and R-species?

e) Differentiate between biotic and abiotic factors?

f) What are the powers of CPCB?

g) What are the major causes of population growth?

h) Differentiate between renewable and non-renewable resources?

i) Explain Air Act 1981?

j) Explain the terms BOD and COD in water sample?

Part-IV

Answer all within 500 words maximum

4.(a) Discuss causes, advantages, disadvantages and solution of Acid Rain?

OR

b) What are different segments and elements of environemnt, explain in brief? Write the name of any four environmental concerns presently we are facing?

5.a) What are the communicable diseases and non communicable diseases, explain with examples? What are the characteristics of communicable diseases?

OR

b) Explain the various causes of Urbanization? What are its effects on society? Write the solutions of urbanization?

6.a) Explain about different causes of environmental conflicts?Explain the role of women in environmental movements?

OR

b) Write a short note on Bishnoi Movement?

7. a) What are the purposes of wildlife conservation? What are the different threats to wildlife? Write two steps to be taken for wildlife conservation?

OR

b) Write one aspect of disaster management? Explain natural disaster management? Write a short note on effective way of natural disaster management.

***

2022

Full Marks - 80

Time - As in the Programme

The figure in the right hand margin indicate marks

Answer All question.

1. Answer all the questions:

a) What is vector bome disease?

b) What is CPCB?

c) Which chemical used to kill pest in agriculture?

d) Jungle Bachao Andolan started from which state of India?

e) What is goal of water act and which year it was started?

f) Define BOD.

g) What is greenhouse gas?

h) Which layer of atmosphere protect earth from harmful UV ray?

2. Answer any EIGHT of the following questions:

a) Explain food chain with an example.

b) What is ecological pyramid?

c) Write notes on non-communicable disease with an example.

d) What is water borne dieseae?

e) What is the role of SPCB?

f) Write a short note about AIDS.

g) Write short note on Appiko movement.

h) What is ammonification?

i) Difference between renewable and non-renewable resources.

j) What is Ecology?

3. Answer any EIGHT of the following questions.

a) Define food web with an example.

b) Write short note on nitrogen cycle.

c) Discusss various layers of atmosphere.

d) Write the impact of urbanization on our society.

e) Write the impact of overpopulation.

f) What is Biodiversty ? Discuss about hte types of biodiversity.

g) What is chipko Movement?

h) What ae the role of women in environmental movement?

i) Explain forest as an ecosystem.

j) What are the laws of thermodynamics?

4. Answer any FOUR of the following questions.

a) Describe about structure and function of ecosystem

OR

Write the cause, effect and control of water pollution.

b) Write a detailed note about control method of population.

OR

Define natural disasters. Explain the impact of flood& its management.

c) Write the structure and function of central pollution control board.

OR

Write a note on different environmental movement in India.

d) Explain briefly about the wild life and its management. Discuss the procedure of conservation.

OR

Discuss different types of soil erosion and its conservation metod.

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2022

Full Marks - 80

Time - As in the Programme

The figure in the right hand margin indicate marks

Answer All question.

1. Answer all the questions:

a) In Ecological Pyramid, Pyramid of Energy is always_____.

b) The process in which ammonia is converted into nitrite is called_____.

c) All population of a given area is called_____.

d) The birth rate of a population per unit area at a given time is called _____.

e) Malaria is a _____type of disease.

f) The movement of individuals from an area & return to the same area aferwards is called_____.

g) _____is the leader of Chipko Movement.

h) CPCB stands for_____.

i) Save Silent Valley Movement occurs in _____ state of India.

j) The Water Act enacted in the year_____.

k) Solar energy is a _____ type of natural resources.

l) An_____is a sudden shaking (vibration) of ground caused disturbances in the eart crust.

2. Answer any EIGHT of the following questions:

i) What is Food Chain? Define with example.

ii) Different between nitrification & de-nitrification.

iii) What is Pollutants? What is the full form of PAN?

iv) Who is the leader of Bishnoi Movement? What is the cause of Bishnoi movement?

v) What is communicable disease? Give two examples of water borne disease.

vi) What is the role of State Pollution Control Board?

vii) Difference between Renewable & Non-renewable resources.

viii) Write a note on Narmada Bachao Andolon.

ix) What is Biodiversity? Difference between in-Situ & Ex-Situ Conservation.

x) When the Air Act Established? What is its objectives?

3. Answer any EIGHT of the following questions

a) Write a note on Atmosphere.

b) Describe Carbon Cycle.

c) Control measures against soil pollution.

d) Give a brief note on Air Borne disease

e) What are the consequences of overpopulation?

f) Write a brief note on Appiko movement.

g) Write a note on role of women in Environment moverment.

h) What is Natrual disaster?What is the Behavioural response during & after the cyclone?

i) Write a note on Wild Life Protection Act.

j) Define Urbanization. Write two effects of Urbanization.

4. Answer any FOUR of the following questions.

a) Write a note on structure & function of Ecosystem.

OR

Write a detailed notes on causes effect & measures of control of Air-Pollution.

b) What are Communicable Diseases?

OR

Write a note on control methods of population.

c) Write a note on different environment movements in Odisha.

OR

Write the structure & function of Central Pollution Control Board.

d) Write a note on management & conservation of soil.

OR

What are natural disasters ? Write about flood & its management.

***

2020

Full Marks - 50

Time - As in the Programme

The figure in the right hand margin indicate marks

Answer All question.

Group-A

(Answer all questions. Each carries 2 marks)

1. (i) What is Biosphere?

ii) How Lithosphere, Hydrosphere & Atmosphere interact Biosphere?

iii) What is Green Marketing?

iv) How Eco Mark helpful?

v) What is Plastic Waste?

vi) Describe the categories of Plastic & its Recovery.

vii) How Ozone layer depletion causes?

viii) Give the difference between GIS, GPS & RS.

ix) Define the term Eco labelling.

x) What is Green Technology?

Group -B

(Answer all questions. Each Carries 12 marks)

2.(a) What is Energy REsoruces? Explain about the Non Renewable resoruces & types.

b) What is Renewable resoruces? Why alternative Renewable soruces need to the environment?

OR

a) How Land use planing to the environemnt. Describe Land Resources.

b) Explain about Nuclear Energy Resources

3.a) Write the 12 pinciples of Green Chemistry?

b) Explain about Iso certification for the substances.

OR

a) How Green computing design helpful for the Environment?

b) Explain the causes of climate change? How Global warmign resonsible for it?

4.a) Describe the States of EIA?

b) What is Solid Waste? Explain abot the E-Waste sources, Causes & Management.

OR

a) What is EIA? Explain its Roles & objectives.

Write the different between EIA, EIS & EA.

b) Describe about the Environmental Protection Act. 1986.

5. Write short notes on : (Any two)

i) Water Act

ii) Air Act

iii) Wildlife Protection Act.

***

2020

Full Marks - 80

Time - As in the Programme

The figure in the right hand margin indicate marks

Answer All questions including Q.No-1.

1. Answer the following questions.

a) What are the control methods of population?

b) What are the effects of radiation pollution?

c) What is soil pollution?

d) Define wild life management.

e) What is radiation pollution?

f) Hoiw does nitrogen return to the soil?

g) How can land pollution be prevented?

h) What is soil erosion?

i) What is biogeochemical cycle?

j) What are the compositions of air?

2. Explain various components of ecosytem in details.

OR

Discuss various components of environment and layers of each component with suitable diagram.

3. Define urbanization. Discuss its effect on the society.

OR

Discuss different sources of water pollution. Explain different measures to control over water pollution.

4. What is noise pollution? Discuss different sources of noise pollution? What are the effects of noise pollution?

OR

What are communicable diseases? Write down its transmission methods. How it is different from non-communicable diseases.

5. Write down the role of Central and State Pollution Control Board in details.

OR

Discuss various environment movements in India for safety of the environment. Also explain how women contribute towards such movement.

6. Write down different steps taken by the government for management and conservation of wild life.

OR

Write short notes. (Answer any two)

a) Wild life Act, 1972

b) Environment Protection

c) Conservation of natural resources

d) Management of natural disaster

***

2019

Full Marks - 80

Time - As in the Programme

The figure in the right hand margin indicate marks

Answer All question.

Group-A

1. Define each of the following in ONE sentence only.

i) Ecology

ii) Pollution

iii) Disaster

iv) Disease

v) Urbanization

vi) NItrogen Cycle

vii) Conservation

viii) Wildlife

ix) Biosphere

x) Atmosphere

Group-B

2. Give an account of carbon cycle with diagrm.

OR

Explain hydrosphere with its importance.

3. Describe the causes and control measures of soil pollution.

OR

Enlist the management during and after cyclone.

4. State the control measures of population.

OR

Give an account of non-communicable diseases.

5. Discuss the role of women in environmental movements.

OR

Mention the role of State Pollution Control Board.

6. Narrate the conservation of wildlife in detail.

OR

Give an account of conservation of forest with its importance.

***

2022

Full Marks - 80

Time - As in the Programme

The figure in the right hand margin indicate marks

Answer All question.

PART-I

1. Answer in one sentence

(a) Give one example of manmade disaster.

b) Give one example of Natural Disaster.

c) Cholera is example of what types of disease?

d) What are the mode of communication to warn people during Natural Disaster.

e) What is the Green House Gases?

f) What is the importance of Ozone Layer?

g) Give one soical cause behind the population growth in India.

h) Give one economic cause responsible for population growth.

i) What was the main objective of the Environment protection Act-1986?

j) What step can be taken to prevent soil erosion?

k) What types of forest has the maximum biodiversity?

l) What is meant by life style diseases?

PART-II

2. Answer any eight of the following within two to three sentences each

a) What is light pollution?

b) What is the necessity of Quarantine?

c) What is Hydrosphere?

d) What are the importance of The Wild Life Protection Act-1972?

e) What cause Tsunami?

f) What is Vehicular pollution?

g) What is the significance of environment?

h) What is nitrification?

i) HOw to protect one from lighting?

j) What is Immunity?

PART-III

3. Answer any eight of the following within 75 words each.

a. Biosphere

b. Ecosystem

c. Sound pollution

d. Community

e. Global warming

f. Sustainable Development

g. Man-made Disaster

h. National Disaster Management Authority

i. Preventive measures of Covid-19

j. HIV and AIDs

k. Methods to control population growth

PART-IV

Answer the following within 500 words each.

4. Explain the signficance of carbon cycle.

OR

Discuss the causes, effects and measures to control industrial pollution.

5. What is climate change?Explain its causes & effects on environment.

OR

Explain the effects of increasign urbanisation on society and growth

6. Give a brief description of types of disasters and there effects.

OR

What are the various institutions and their role in disaster management? Explain.

7. Give an accoutn of communicable diseases and their transmission.

OR

Explain the role of different sector in managing Health Disaster.

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2021

Full Marks - 80

Time - As in the Programme

The figure in the right hand margin indicate marks

Answer All question.

1. Fill in the blanks.

i) Carbon dioxide, methane, nitrous, oxide and chlorofluorocarbon are together called _____gases.

ii) _____proposed the term “ecosystem”.

iii) _____is defined as group of individuals of any one kind of organism.

iv) The port of the earth where differed ecosystems operate is called the_____

v) The transfer of food energy from plant sources through a service of organization in an ecosystem is known as_____

vi) When sulpher dioxide and nitrogen oxides reacts in the atmosphere if forms _____ rain.

vii) Unwanted sound is called _____

viii) Increased radiation from atomic bomb blasts or radioactive wastes are hazardous, because such radiations are called_____ radiation.

ix) An_____is a sudden shaking (vibrations) of ground caused by disturbances in the earth’crust.

x) The diseases that are transferred from one person to another is called_____ diseaes.

xi) In ecosystem the living organism are placed in different levels called _____level.

xii) The plants synthesize/prepare their own food, so they are called_____

2. Answer any EIGHT of the following

i) What is soil erosion and what are its effect?

ii) Define ecosystem and this termwas given whom?

iii) What are the causes of air pollution?

iv) Give difference food chain and food web.

v) Define atmosphere

vi) When was building protection act established? Write its objective.

vii) When was the water act established and what was its objective.

viii) Write down the role of central pollution control boards.

ix) Define pollutants? How many ways they are available?

x) What is photochemical smong?

3. Answer any EIGHT of the following:

i) Write a note on hydrosphere.

ii) Give some points for conservation of soil.

iii) Write some points on flood.

iv) Write the functions of State Pollution Control Board.

v) Define urbanization and its effects.

vi) What are natural resoruces and its types.

vii) How resources can be conserved?

viii) Write a note on carbon cycle.

ix) What are the components of lithospehere?

x) What are the causes and effects of radiation pollution?

4. Answer any FOUR of the following

i) What do you mean by ecosystem? What are the different components of ecosystem?Mention in detail

ii) What are communicable diseases? Mention some communicable diseases.

iii) Write notes on different environmental movements in India.

iv) Write notes on Environment protection. Discuss various acts related to Environmental Protection.

v) What are natural disasters? Write some of the disaster and their management.

vi) Write a detailed notes on causes, effect and measures of control of air pollution.

vii) Write a note on management and conservaiton of wildlife.

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2021

Full Marks - 80

Time - As in the Programme

The figure in the right hand margin indicate marks

Answer All question.

Part-I

A. Define the following:

1. Ecological pyramid
2. Chipko movement
3. SPCB
4. CNG
5. CPCB
6. Noise Pollution
7. Sustainable Development
8. Nuclear Hazard
9. Water Conservation
10. Biodiversity
11. Child Welfare
12. Red Data Book

Part-II

B. Answer the following questions

1. What is the causes of soil erosion?
2. Write two effects of airpollution?
3. Write scope of the environment?
4. What is the meanign of K-selected species?
5. What do you mean Communicable diseases?Give the two examples.
6. What are the main objectives of State PollutionControl Board?
7. What is the difference between Hazard & Disaster?
8. Write the name of two Non Communicable diseases.
9. What is the main objective of Wild life Protection Act 1972?
10. What are the causes of Acid Rain?

Part-III

C. Answer the following questions in brief (any 8)

1. Define the term population density
2. Define the term population distribution?
3. What is a Eco-system?
4. Differentiate between Biotic factors & Abioticfactors.

5. Differentiate between communicable diseases and non -communicable diseases.
6. Whatisacommunity?
7. How does radiationcause Pollution? Write two examples.
8. What do you mean by Speciation & Competition of Individuals?
9. What are the objectives of CPCB?
10. What are natural resources?

Part-IV

D. Answer the following questions

1. Describe broadly the constituents of atmosphere and atmosphere structure? Mention which major gasses are present in different levels of atmosphere?

   OR

   What are different segments and elements of environment? Explain in brief.

2. Explainvarious causes of Urbanization and its effects on society? How does population affect ecology?

   OR

   Explain different modes of contact of communicable diseases and non-communicable diseases? What are the steps to betaken prevent disease transmission?

3. What are the root causes of environmental movements? What are different types of environmental movements? Explain the role of women in environmental movements?

   OR

   Explain Functions and powers of CPCB?

4. Classify natural resources? What are the causes of depletion of natural resources?

   OR

   What is natural disaster and classify them? What are the aspects of disaster management? Write a short note on effective way of natural disaster management?

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2021

Full Marks - 80

Time - As in the Programme

The figure in the right hand margin indicate marks

Answer All question.

Part - I

1. a. Fill in the blanks with word(s)

a) World Environment Day is observed every year on _____

b) Silent Valley is situated in the state of _____

c) Maximum biodiversity is found in the _____ forests.

d) _____is the major constituent of biogas.

e) For measuring intensity of earthquake _____ scale is used

f) Social erosion can be prevented by _____

g) Cholera is a _____ type of disease

h) Generic name of man is _____

i) _____ is the national animal of India.

j) Coal is a _____ resoruce

k) _____ is a fossil fuel

l) Wildlife protection Act was enacted in the year _____

PART-II

2. Answer any eight questions, each within two to three sentence

(a) Food chain

(b) Biosphere

c) Contact Tracing

d) Mortality

e) Hydrosphere

f) Renewable Resource

g) Pandemic disease

h) Quarantine

i) Tsunami

j) Social afforestation

PART-III

3. Answer any eight questions, each within 75 words

a) Troposphere

b) Threats to biodiversity

c) Effect of yoga on Covid patients

d) Radiation pollution

e) The Wildlife Protection Act

f) Renewable energy

g) Natural Disaster management

h) Explain 3R principle

i) Ozone layer depletion

j) Corporate Social Responsibility

k) Chipko Movement

PART-IV

Answer any four questions, each within 500 words

4. Describe the nitrogen cycel and its significance.

OR

Discuss the causes, effects and measures to control water pollution.

5. What is sustainable development? Discuss the steps taken by government towards sustainable development.

OR

Discuss the causes of population growth and different methods adopted to control population.

6. Explain global warmign with its causes and effects.

OR

Discuss the preparedness measures taken by government for disaster management.

7. Discuss the different preventive measure adopted during Covid-19 pandemic.

OR

Briefly discuss on water borne diseases.

8. Discuss the effects of urbanisation on the society and methods of urban wastes managment.

OR

Write notes on :

a) NDRF b) Communicable disease

9. Discuss environmental laws.

OR

Discuss the characteristics of a community.

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2019
SUB-EVS
BSc. ITM

1. Write the answer of the flowign questions.

a) Define food chain.

b) Write down the biotic component of an ecosystem

c) Defien the composition of air.

d) Defien noise pollution

e) Define biodiversity.

f) Give two examples of control method of population.

g) Write down the major roles of State Pollution Control Board.

h) What is objective of Chipko movement?

i) What is air pollution?

j) Define wild life management.

2. Write down the structure and function of ecosystem.

OR

Write notes on:

a) Atmosphere

b) Nitrogen cycle

3. Define water pollution. Write down the sources of water pollution. Explain different measures to control water pollution.

OR

Write notes on :

a) Flood and its management

b) Thermal Pollution

4. Define what are communicable diseases? Write down its transmisson methods.

OR

Explain the following terms in detail.

a) Urbanization

b) Population Growth Curve

5. Write down the role of Central Pollution Control Board in details

OR

a) Appiko Movement

b) Role of Women in Environmental Movements

6. Write down the conservation of wild life and discuss its management methods.

OR

a) Wild Life Act

b) Soil Erosion and conservation

OR

Give an account on water pollution with all its effect, causes and measures to control it

(b) What is population ? Describe all its characteristics.

OR

Write a detailed note on urbanisation and its impact.

(c) Give a detailed note on the major environmental movements in India

OR

Write a note on role of women in environmental movements.

(d) Write a note on different types of environmental laws of our country.

OR

What do you mean by disaster ? Give a note on the preparedness before and after flood and earthquake.

2023

Full Marks - 80

Time - As in the Programme

The figure in the right hand margin indicates marks.

Answer All questions

1. Answer all the Questions. [1 × 12 =12

(a) Write the full form of SPCB ?

(b) Who first use the term 'ecosystem' ?

(c) The living component of ecosystem us called _____.

(d) Which layer in the atmosphere protects the living organism from harmful radiation of the sun ?

(e) The Chipko movement started in which village of Uttar Pradesh ?

(f) In which year, the water Act was started?

(g) Write an example of in-situ conservation.

(h) _____ is the aggregation or arrangement of individual in a population.

(i) _____ means exit of individual in a group of population.

(j) _____ is the number of offspring produced per female per unit time.

(k) In which state of India, Silent valley movement was started ?

(l) _____ is the sudden shaking of ground caused in the Earth's crust.

2. Answer any eight of the following questions. [2 × 8=16

(a) What do you mean by biogeochemical cycle ?

(b) Define food chain with examples

(c) What was the aim of NARMADA BACCHAO ANDOLAN ?

(d) What is an earthquake ?

(e) What are pollutants ?

(f) Define Trophic level.

(g) What is pollution ? Write name some of the environmental pollution.

(h) What do you mean by non- communicable diseases give some examples

(i) Define Denitrification.

(j) What was the objectives of Water Act ?

[Cont...

3. Answer any eight of the following questions. [3 × 8=24

(a) Describe the steps of nitrogen cycle.

(b) Write down the Control measures of noise pollution.

(c) Write a note on Appiko movement.

(d) Differentiate between biotic and abiotic component of ecosystem.

(e) Write a note on consumers of ecosystem.

(f) What is community ? Write 3 characteristics of community.

(g) Write a note on water and vector borne diseases.

(h) Write some steps that should be taken after the cyclone.

(i) Differentiate between renewable and non-renewable resources.

(j) Define urbanization. Write two impacts of urbanization.

4. Answer any four of the following questions. [7 × 4=28

(a) What is ecosystem ? Describe it in details.

[Cont...

4. Explain the role of IT in environment and human health. What is the public awareness for its effects ?

OR

Describe about the Environmental Protection Act, 1986.

5. How ecological pyramids are easy network system for structure and function of ecosystem ?

OR

Write about the environmental ethics and global warming.

II - S - BCA - P - AEC - II - (Environmental Science) - (OC)

II - S - BCA - P - AEC - II - (Environmental Science) - (OC)

2023

Full Marks - 70

Time - As in the Programme

The questions are of equal value.

Answer ALL questions.

1. Explain about the food resources. Also write the environmental impact of fertilisers.

OR

Explain the forest resources and the land use pattern of India.

2. What is Eco-system ? Describe the different types of eco-system. What is the role of energy flow in eco-system ?

OR

Explain about the Biodiversity, its uses and conservation of biodiversity.

3. Explain the effects and control measures of Air and Water Pollution.

OR

Explain any four types of natural disasters and its management.

Write a detailed note on characteristics of population.

(c) Write a note on different environment movements of India.

OR

Write the structure & Function of State Pollution Control Board.

(d) Write a note on management & conservation of resources.

OR

What are natural disasters ? Write about Earthquake & its management.

II - S - B.Sc. (Comp.Sc.) - Core - VIII - (Environmental Science)

2023

Full Marks - 80

Time - As in the Programme

The figures in the right hand margin indicate marks.
Answer ALL questions.

1. Answer all the questions : [1 x 12 = 12

(a) Each level of food chain is called _____.

(b) The process in which ammonia is converted into nitrite is called _____.

(c) All population of a given area is called _____.

(d) The death rate of a population per unit area at a given time is called _____.

(e) AIDS is a _____ type of disease.

(f) The movement of individuals from an area & return to the same area afterwards is called _____.

(g) Who is the leader of Chipko Movement ?

(h) What is SPCB ?

(i) The Appiko movement was started in _____ state of India.

(j) In which year the Forest Act was enacted ?

(k) Wind energy is a _____ type of natural resources.

(l) _____ is a sudden shaking (vibration) of ground caused disturbances in the earth crust.

2. Answer any EIGHT of the following questions : [2 x 8 = 16

(a) Difference between Renewable & Non-renewable resources.

(b) Write a note on Silent Valley Movement.

(c) Write some points on National park.

(d) When the Water Act Established ? What is its objectives ?

(e) What is food web ? Define with an example.

(f) Define biogeochemical cycle.

(g) What is pollutants ?

(h) Write is the cause of Chipko movement.

(i) What is communicable disease ? Give two examples of water borne disease.

(j) What is the role of State Pollution Control Board ?

3. Answer any EIGHT of the following questions : [3 x 8 = 24

(a) Write a note on Hydrosphere.

[Cont...

(b) Describe Carbon Cycle.

(c) Write the Control measures against noise pollution.

(d) What is Natural disaster ? Write some preparedness for cyclone.

(e) Write a note on Wild Life Protection Act.

(f) Define urbanization. Write two effects of urbanization.

(g) Give a brief note on Water Borne disease.

(h) Write some characteristics of population.

(i) Write a brief note on Appiko movement.

(j) Write a note on role of women in Environment movement of India.

4. Answer any FOUR of the following questions : [7 x 4 = 28

(a) Write short note on structure & functions of Ecosystem.

OR

Write a detailed notes on causes effect & measures of control of Water Pollution.

(b) What are communicable diseases ? Mention some communicable diseases.

OR

[Cont...

(c) What is water pollution ? Write the causes and management of Water Poll.

(d) Explain the causes and management of air pollution.

3.(a) Define Urbanization ? Write the positive and negative effects on Society.

(b) Write the difference between communicable diseases and Non-communicable diseases.

4. Write short notes on (any TWO) :

(a) Grass-root Environment movements in India.

(b) Environmental movements in Odisha.

(c) State pollution control Board.

(d) Role of women in India.

5. Explain briefly the concept of forest management and conservation of wild life.

OR

Write about Environmental Protection Laws.

2022

Full Marks - 70

Time - As in the Programme

The questions are of equal value.

Answer ALL questions.

1.(a) What is Atmosphere ? Discuss about Different layers of atmosphere.

(b) Discuss about Types of Ecosystem.

OR

(c) What is Biogeochemical Cycle ? Write the different types of biogeochemical cycles ? Explain each one in brief.

(d) Define Lithosphere. Discuss about all the layers of Lithosphere.

2.(a) Explain the concept of Natural Disaster and their management.

(b) Write the difference between Thermal pollution and Radiation Pollution.

OR

[P.T.O...

6. What is logical sequence series ? Explain with examples.

7. What is statement analysis ? Describe the parameters of statement analysis.

8. Describe the relationships among statements, assumptions and conclusions in the reasoning process.

2025

Time :As in Programme

Full Marks : 100

The figures in the right-hand margin indicate marks.

*Answer **all** questions.*

(Analytical Ability and Logical Reasoning)

PART-I

1. Answer all the following Questions in one word. 1x10

   a. ____ reasoning involves making generalizations based on specific observations or evidence

   (Deductive, Inductive, Spatial)

   b. Pattern recognition is the process of identifying ____ in data, sequences, or structures.

   (errors, predictions, regularities)

   c. Logical reasoning often involves using ____ to determine whether a conclusion follows from given premises.

   (syllogisms, intuitions, emotions)

   d. If A is the brother of B, and B is the daughter of C, then A is C's ____.

   (father, son, uncle)

   e. If one-third of one-fifth of a number is 15, then one-tenth of that number is :

   (45, 22.5, 27.5)

f. In the series A2, C4, E6, G8, ____, the missing term is ____.

(I10, J11, K12)

g. If 1st January 2023 was a sunday, then 1st January 2024 will fall on ____.

(Sunday, Monday, Thursday)

h. If A + B means A is the brother of B; A-B means A is the sister of B and A x B means A is the father of B. Which of the following means that C is the son of M ?

(N x F + C - M; N + M - F x C; M x N - C + F)

i. The ____ meters length of the bridge, which a train of 130 metres long and travelling at 45 km/hr can cross in 30 seconds.

(200, 245, 260)

j. How much time will it take for an amount of Rs. 450 to yield Rs. 81 as interest at 4.5% per annum of simple interest ?

(4 years, 5 years, 6 years)

PART-II

2. Answer the following question in 50 words each. 2x9

a. Pattern recognition

b. Role of logical reasoning in problem-solving

c. Factors of effective decision making

d. Difference between linear and circular arrangement in reasoning

e. Concept of input-output problems in reasoning

f. Binary logic problems in reasoning

g. Alphanumeric Series

h. Meaning of syllogisms

i. Connectives in arguments

PART-III

3. Answer any eight questions of the followings in 250 words each. 5x8

a. Write the characteristics of deductive reasoning.

b. Describe the uses of abductive reasoning.

c. What is spatial reasoning ?

d. What skills are tested by pattern recognition in logical reasoning ?

e. Write the purpose of logical sequence series in reasoning.

f. Why are blood-relationship problems important in reasoning ?

g. Explain how analogies test a candidate's ability to identify relationships.

h. Explain the significance of cube problems in reasoning.

i. Write the steps of decision making.

j. Explain how statements and conclusion are related.

PART-IV

Answer any four of the following in 800 words each. 8x4

4. What is critical thinking ? Discuss the characteristics of critical thinking.

5. What is pattern recognition ? Explain different types of pattern recognition with examples.

2024

Time :As in Programme

Full Marks : 80

The figures in the right-hand margin indicate marks.

*Answer **all** questions.*

PART-I

1. Answer all questions. 1x12

   a. Is a binary relation to be both symmetric and antisymmetric the statement is (T/F)

   b. The binary relation less than (<) on set of real number is partial ordering (Yes / No)

   c. Define well ordering relation.

   d. $p \rightarrow q$ and $q \rightarrow p$ are logically equivalent is it (True / False)

   e. If p is prime and pXc then $c^{p-1} \equiv 1 \pmod{p}$ is (True / False)

   f. Write an example of non singular matrix ?

   g. adj $(\alpha I_n) = \alpha^{n-1} I_n$ the statement is (True / False)

   h. Span of $x+y=0$ and $x-y=0$ in V_3 is V_3 is it (True / False)

   i. The range and Kernel of a square matrix are of the same dimension (True/False)

   j. A basis for V_3 can be extended to a basis for V_4 is it (True/False)

   k. A real matrix is unitary then it is orthogonal the statement is (True / False)

l. The column of a square matrix A are L.I iff its rows are L.I. is it (True/False)

PART-II

2. Answer any eight questions. 2x8

a. Define divison algorithim ?

b. $f : z \to z$ defined by $f(x) = 3x^3 - x$ Determine whether f is are to one or onto

c. Find gcd of (1800, 756)

d. Prove that $(A \cup B)' = A' \cap B'$

e. Find eigen values of $A = \begin{pmatrix} 3 & 1 \\ 6 & 2 \end{pmatrix}$

f. $A = \begin{pmatrix} -2 & 5 \\ -3 & 4 \end{pmatrix}$ find A^{-1}

g. $A = \begin{pmatrix} 2 & -5 \\ 3 & 9 \end{pmatrix}$ $B = \begin{pmatrix} 2 & 3 \\ 4 & -1 \end{pmatrix}$ find $(AB)^T$

h. If λ is an eigen values of matrix A find λ^n is an eigen values of A^n

i. b = {(1,0,0) (1,1,1) (1,2,3)} Test whether the set is L.I or L.D.

j. Define Range and Kernel of a Linear map ?

PART-III

3. Answer any eight questions. 3x8

a. Prove that $n! > 2^n$ for all $n \geq 4$

b. Solve the congruence relation $20x \equiv 101 \pmod{637}$

c. $f: A \to B$ and $g: B \to A$ defined by $f(x) = \frac{x}{x-2}$ and $g(x) = \frac{2x}{x-1}$ find gof and fog ?

d. If A is a non singular matrix. Then A^T is also non singular $(A^T)^{-1} = (A^{-1})^T$

e. Determine range and rank of *T*, $T: V_2 \to V_3$ defined by $T(x_1, x_2) = (x_1, x_1+x_2, x_2)$

f. Prove that the set *{(1,1,1) (1,-1,1) (0,1,1)}* is a basis for V_3 ?

g. T:U $\to$ V be a linear map prove that R(T) is a subspace of V.

h. Find integers *x* and *y* such that $154x + 260y = 2$

i. Find Truth table of $(\sim p) \to (p \to \sim q)$

j. In a complex vector space V_2^C show that (1+i, 1-i) belongs to [(1+i, 1), (1,1-i)]

PART-IV

Answer all questions. 7x4

4. Let 'a' be any real number show that two sets (0,1) and (a, ∞) have the same cardinality.

OR

Let $A = \left\{ x \mid x \neq \frac{1}{2} \right\}$ and define $f: A \to R$ by $f(x) = \frac{4x}{2x-1}$ is *f* is one to one show it and find rng '*f*'.

5. Prove by mathematical induction that

$$1^2 + 3^2 + 5^2 + \ldots + (2n\text{-}1)^2 = \frac{n(2n-1(2n+1)}{3}$$

OR

If R is an equivalence relation on set 'X' then show that R^{-1} is also an equivalence Relation.

6. Reduce the matrix to the row reduced echelon form

$$A = \begin{bmatrix} 1 & -1 & 1 \\ 3 & -1 & 2 \\ 3 & 1 & 1 \end{bmatrix}$$

OR

Find the range, kernel, rank and nullity of the matrix

$$\begin{bmatrix} 2 & 0 & 1 \\ 7 & 1 & 2 \\ 3 & -1 & 1 \end{bmatrix}$$

7. Let $T:V_4 \rightarrow V_3$ be a linear map defined by
$T(e_1) = (1,1,1)$ $T(e_2)=(1,-1,1)$ $T(e_3) = (1,0,0)$
$T(e_4) = (1,0, 1)$ then verify $v(T) + n(T) = \dim U = 4$

OR

Determine the eigen values and corresponding eigen spaces for the Matrix $\begin{bmatrix} 3 & 2 & 4 \\ 2 & 0 & 2 \\ 4 & 2 & 3 \end{bmatrix}$

7. Define Dirac Delta function and give its representation as limit of a Gaussian function and Rectangular function.

8. a. Show that $\vec{\nabla}\times\left(r^2\vec{r}\right)=0$, where $\vec{r}$ is the position vector.

b. If $\vec{A}$ is a constant vector and $\vec{r}=x\hat{i}+y\hat{j}+z\hat{k}$, then prove that $\vec{\nabla}\times\left[\left(\vec{A}\cdot\vec{r}\right)\cdot\vec{A}\right]=\vec{A}\times\vec{r}$.

01.11.25

2025

Time :As in Programme

Full Marks : 100

The figures in the right-hand margin indicate marks.

*Answer **all** questions.*

PART-I

1. Answer all the following Questions. 1x10

a. The integrating factors of $\frac{dy}{dx}+y=3e^x y^3$ is ____.

b. Value of curl $\phi\vec{A}$ is ____.

c. If $\vec{\nabla}\times\vec{F}=0$, then $\vec{F}$ is ____.

d. $f(x)\cdot\delta(x-a)=$ ____.

e. $\vec{\nabla}\phi$ in cylindrical co-ordinate is ____.

f. Pressure field is an example of ____ field.

g. Formula for Wronskian $W(y_1,y_2)$ is ____.

h. The cylindrical coordinate system is orthogonal (True/ False)

i. Flux of vector field is a scalar quantity. (Yes/No)

j. Value of $\hat{i}\times\left(\hat{j}\times\hat{k}\right)=$ ____.

PART-II

2. Answer the following question. 2x9

a. Write the condition for Exactness.

b. Plot the graph of $y = x + \frac{1}{x}$

c. Show that $div\left(\frac{\vec{r}}{r^3}\right) = 0$.

d. State Green's theorem in a plane.

e. Find the value of $\int_s \vec{r} \cdot d\vec{r}$.

f. Prove that $\int x \cdot \delta(x) \cdot dx = 0$.

g. Show that $\left(\vec{A} \cdot \vec{B}\right)^2 + \left(\vec{A} \times \vec{B}\right)^2 = (AB)^2$.

h. Find $\frac{dy}{dx}$, if $\frac{x^2}{a^2} + \frac{y^2}{b^2} = 1$.

i. Explain the physical significance of scalar Triple product.

PART-III

3. Answer any eight questions of the followings. 5x8

a. Expand sin x in powers of $\left(x - \frac{\pi}{2}\right)$ in Taylor series.

b. Explain constrained Maximization using Lagrange Multipliers.

c. Solve $\left(D^2 + 1\right) y = \sec x$.

d. Prove that $\hat{i} \times \left(\vec{a} \times \hat{i}\right) + \hat{j} \times \left(\vec{a} \times \hat{j}\right) + \hat{k} \times \left(\vec{a} \times \hat{k}\right) = 2\vec{a}$.

e. Derive an expression for Divergence of a vector function in spherical polar coordinate.

f. Find relation between Delta function with the step function.

g. Find the value of 'n' for which the vector $r^n \cdot \vec{r}$ is solenoidal. Where $\vec{r} = x\hat{i} + y\hat{j} + z\hat{k}$.

h. Prove that $\int_v \vec{\nabla}\phi \cdot dv = \iint_s \phi \cdot d\vec{s}$.

i. Solve the differential equation $\frac{dy}{dx} = \frac{y}{x+y}$, given y=1 at x=1.

j. Derive an expression for CURL in term of orthogonal curvilinear coordinate system.

PART-IV

Answer any four of the following. 8x4

4. Solve $\frac{d^2y}{dx^2} - 2\frac{dy}{dx} + y = x \cdot (e^x) \cdot \sin x$.

5. Show that $\int_s d\vec{s} \times \vec{\nabla}\phi = \int_s \phi \cdot d\lambda$, where 's' is the surface bounded by the curve c, ϕ is a scalar point function and $d\lambda$ is the length element.

6. Obtain expression for velocity and acceleration of a particle in spherical polar coordinate system.

2024

Time :As in Programme

Full Marks : 60

The figures in the right-hand margin indicate marks.

*Answer **all** questions.*

PART-I

1. Answer all the questions. 1x8

   (a) The A.C. component contained in the output of a rectifier is known as _____.

   (b) If a charge is moving in a magnetic field, is there any work done?(YES/NO)

   (c) Dimension of coefficient of Thermal conductivity is _____.

   (d) Entropy remains constant for which thermo dynamical process?

   (e) Velocity of sound is _____ of pressure of the gas.

   (f) S.I. unit of coefficient of Elasticity is _____.

   (g) Write relation between 'g' and 'G'.

   (h) Moment of inertia is a scalar quantity.(TRUE/FALSE)

PART-II

2. Answer any eight of the following within two to three sentences each: (1.5x8)

   (a) Write relation between JFET parameters.

   (b) A given transistor has $\alpha = 0.95$. Then find β.

(Turn Over)

(c) Does a current carrying circular coil produce uniform magnetic field? Explain

(d) What do you understand by magnetic flux? Write its S.I. unit.

(e) Find the efficiency of a heat engine working between ice point and steam point.

(f) Write Planck's radiation formula.

(g) What is Lissajous figure?

(h) Find the phase difference between two S.H.M. are represented by $\chi=\alpha\sin\omega t$ and $\chi=b\cos\omega t$.

(i) What is light cantilever?

(j) State the perpendicular axis theorem of Moment of Inertia.

PART-III

3. Answer any eight of the following within 75 words each: (2x8)

(a) Calculate the dynamic resistance of a JFET having amplification factor 80 and trans-conductance 200 μmho.

(b) State and explain Lorentz force Law.

(c) Explain the time constant of an RC circuit and find its dimension.

(d) Distinguish between P-type and N-type semiconductor.

(e) Write Maxwell's Thermodynamic relation.

(f) Explain the physical significance of entropy.

(g) What do you mean by S.H.M.? Give two examples.

(h) A particle executes S.H.M. of period 10 sec and amplitude 5 cm. Calculate the maximum velocity.

(i) Soap bubbles are spherical. Explain?

(j) Find relation between gravitational potential and gravitational field intensity.

PART-IV

Answer all the questions within 500 words each: (6x4)

4. Define Moment of Inertia. Derive an expression for M.I. of a social sphere rotating about an axis passing through its diameter.

OR

What is cantilever? Derive an expression for the depression of the loaded end of a cantilever of circular cross section.

5. Derive an expression for differential equation of damped harmonic motion and find its solution.

OR

What is Transverse wave? Derive an expression for the velocity of Transverse wave in a stretched string.

6. What is heat engine? Derive an expression for efficiency of Carnot's engine.

OR

Derive an expression for Clausius-clapeyron's first Latent heat equation and discuss its significance.

7. State Biot-savart's law. Derive an expression for the magnetic induction due to a long straight current-carrying conductor.

OR

With neat circuit diagram describe the working of CE mode transistor with its V~I characteristics.