LAKSHYA INSTITUTE OF TECHNOLOGY

BCA

2nd SEM UNIVERSITY

OLD QUESTION

22/10/25

II - S - BCA - Core - 1 - Major - 4 - (Object Oriented Programming C++) - (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

i. Who invented C++ ?

a) Dennis Ritchie b) Ken Thompson

c) Brian Kernighan d) Bjarne Stroustrup

ii. What is C++ ?

a) An object- oriented programming language

b) A procedural programming language

c) A language supporting both procedural and object- oriented programming

d) A functional programming language

[Cont....

iii. Which file extension is used for user-defined header files in C++ ?

a) .hg b) .cpp

c) .h d) .hf

iv. Pick the incorrect statement about inline functions in C+ :

a) Saves overhead of a return call from a function

b) They are generally very large and complicated functions

c) These functions are inserted/substituted at the point of call

d) They reduce function call overhead

v. What is an abstract class in C++ ?

a) Any Class in C++

b) A Class from which another class is derived

c) A Class specifically used as a base with atleast one virtual function

d) A Class specifically used as a base with atleast one pure virtual function

[Cont....

vi. Which concept allows reuse of existing code in C++ ?

a) Inheritance b) Polymorphism

c) Abstraction d) Encapsulation

vii. What is Inheritance in C++ ?

a) Wrapping of data into a single class

b) Deriving new classes from existing classes

c) Overloading of classes

d) Classes with the same names

viii. How many access specifiers are available in C++ for class derivation ?

a) 1 b) 2 c) 3 d) 4

ix. If a class is derived privately from a base class then :

a) No members of the base class are inherited

b) All members are accessible by the derived class

c) All members are inherited but become private and inaccessible outside

d) It results in an error

[Cont...

x. What is a pure virtual function ?

a) A virtual function defined inside the base class

b) A virtual function with no definition in the base class

c) A virtual function defined only in the derived class

d) Any function declared as virtual

Part – II

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

a. Explain inline function in C++ programming concept.

b. Define tokens in C++.

c. Write the difference while loop and do while loop.

d. What is constructor in C++ ?

e. State and explain Abstract class.

f. Describe destructor in C++ ?

[Cont...

g. What is operator overloading ?

h. Write down the correct syntax to open a file in write mode in C++ ?

i. What is the index of the first element in an array ?

Part – III

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

a. Write a C++ program to demonstrated the use of arithmetic, relational and logical operators.

b. Explain the for loop with an example. How is it different from while loop ?

c. Discuss use of nesting of class with an example.

d. Write a program for swapping of two number.

e. What is single inheritance ? Explain with suitable example.

f. Write a program to find square and cube of a number using inline function.

[Cont...

g. Write a program that find the maximum and minimum elements in one-dimensional array.

h. Write a program to find the factorial of a number.

i. State and explain Friend function.

j. What pure virtual function ? Explain with example ?

Part – IV

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

4. a. What is basic concept of object-oriented programming. [5

b. Differentiate between C and C++. [3

5. a. State and explain Nested member function. [5

b. Write a program to find out biggest of three no using Nested member function. [3

6. a. Explain Array of object in C++ with an example. [5

b. What a program to reverse of a number. [3

[Cont...

7. Explain multilevel inheritance and hierarchical inheritance with suitable examples. [8

8. Discuss in detail the file management in C++. Write a program to copy the contents of one file into another. [8

2022

Full Marks - 60

Time - As in the Programme

The figure in the right hand margin indicate marks

Answer All question.

1. Answer any Eight of the following questions.

a) Define Object. How to create it?

b) What do you mean by inheritance?

c) What is friend function?

d) What is token in C++?

e) What is inline function?

f) Can we declare data number in public section?

g) Define Constructor

h) What is Pointer?

2. Answer any Eight the following questions

a) What is object oriented programming?

b) Describe different parts of a function.

c) What is Variable? How to declare it?

d) What is parameterized constructor?

e) What is scope resolution operator?

f) How to define a function outside of the class?

g) What is multiple inheritance?

h) What is pure virtual function?

i) What is constructor overloading?

j) What is Reusability? How it is supported by C++?

3. Answer any Eight of the following questions (within 50 words)

a) What is data hinding? How it is supported by C++

b) What are the concept of OOPs?

c) What are manipulators?

d) What are the file opening modes are used in handling C++ files?

e) Write the use and syntax of constant member functions.

f) Differentiate between constructor and destructor.

g) What are the data types used in C++?

h) What is explicit and implicit typecasting?

i) Explain constrctor with arguments.

j) What are the role of input and output stream?

4. Answer any four of the following questions.

a) What is inline function? WAP to define function cube () as inline for calculating age.

OR

Discuss various control structures used in C++ with example

b) Define access specifier and what are its type? Write a program to input your name and age and print it.

OR

Define Constructor. What are its type? Explain the concept with an example.

c) Write the advantages of inheritance. Write a program to show how multiple inheritance is implemented.

OR

Define Array.What are its advantages? Write a program to create an array with set of numbers and add it.

d) Write a program to input employee name and department and store it in employee dat file.

OR

Explain pure virtual function with an example.

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2022

Full Marks - 60

Time - As in the Programme

(Follow the instructions of each Part)

Part-I

1. Fill in the blanks or answer in One word

a) The C++ was invented by_____.

b) If we declarfe a variable, unsigned long int a; then size of (a) will be _____

c) If arguments are passed to the main () function, then these arguments are called as _____ argument.

d) _____ is a special member function that has the same name as its class name.

e) _____ function is a non member function, but allowed to access the private data members of a class.

f) If we declare a variable as _____,then a single copy of that variable will be shared among the objects of that class.

g) Ambiguity of members normally occurs in _____ inheritance.

h) Which of the following operator cannot be overloaded.

i) << (ii) & (iii) new (iv) none of these

Part - II

2. Answer any Eight within Two or Three sentences:

a) What is the use of getline () function? Which two arguments does it require?

b) What is inline function?

c0 State the usage of :: operator.

d0 Compare if-else with?: operator.

e) What is the meaning of precedence of operators? State the precedence of all unary operators.

f) Briefly explain the use of the default keyword.

g) Compare break; and continue, statement.

h) What are default arguments?

i) What is recursion?

j) How are bit fields useful in C++?

Part - III

3. Answer any Eight within 75 words.

a) What is the difference between object and Variable?

b) What is the significance of the static keyword? How are static variables initialized? Explain with a statement.

c) What is the usage of static objects? Write a code snippet to explain the same.

d) Compare the functinoality of friend function and friend class.

e) What is a Constructor? Explain different types of constructor used in C++.

f) Write a code snippet to demonstrate constructor with default arguments.

g) State the operators that cannot be overloaded using the friend function.

h) What is the use of virtual keyword?

i) What are pure virtual functions? Why these functions are essentials?

j) Describe two methods of opening of file.

Part-IV

4.a) Write a program to receive a positive integer number from the user and display its equivalent octal and heaxadecimal number

OR

b) Write a program to display all the even numbers in between 1 to 100.

5.a) Write a program to generate fibonacci series upto 200 using recursive function.

OR

b) Write a program to define two different class and use a common friend function for both of them, finally read and display data from both of these classes.

6.a) Write a program to demonstrate the working of copy constructor.

OR

b) Write a programto overload" operator and multiply two objects of the same class.

7.a) Write a program to demonstrate multipath or hybrid inheritance using virtual class.

OR

b) Write a program to write and read string to a file using put () and get () function.

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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 any Eight of the fololwing questions.

i) Which of the following can't be friend?

a) Function b) Class

c) Object d) Operator function

ii) The operator used for dereferencing or indirection is_____.

a) * b) %

c) -> d) =

iii) Which of the following is illegal?

a) int *p; b) int* p;

c) int*p; d) int p*;

iv) A function with the same name as the class,but preceded with a tilde character (-) is called _____.

v) What is the use of eof ()?

vi) A derived class with only one base class in known as_____

vii) What is the use of scope resolution operator?

viii) What is the use of type casting?

ix) What is data abstraction?

x) What are the relational operator used in C++?

2. Answer the following questions:

a) What is the use of new operator ? Explain with example

b) What is the need of manipulator?

c) How to differentiate between cin and cout?

d) What is the need of friend function?

e) Define encapsulation.

f) Define reusability. How it is implemented in C++?

g) Write few applications of OOPs.

h) Define dynamic binding.

3. Answer any Eight of the following questions (within 50 words)

a) How to declare a class? What are its advantages?

b) How conditional operator used in C++? Explain with an example

c) What is bottom - up desing? How it is supported by C++?

d) Write the rules to define a constructor.

e) What is friend function?

f) Define call by reference.

g) How to declare parameterized constructor in C++?

h) Deine multilevel inheritance.

i) What is user defined data type?

j) What is the difference between get () and put()?

k) Difference between seek g() and seek p ()?

l) What is default argument? Describe with suitable example?

4. Answer any Four of the following questions.

1) What are the basic features of 'Object Oriented Programming' describe briefly?

OR

Discuss various operators used in C++ with example.

2) Declare a class called Employee with the data members Emp_code, Name, Age, Salary . Write a C++ programme to create 3 objects of the Employee class, input values for 3 employee using constructor and print the Emp_code and Name if the salary is more than 50,000.

OR

Disply difference between call byh value and call by address by using two different C++ programme.

3. Describe types of inheritance with example.

OR

What is function overloading? Design a C++ program to show the example of function overloading.

4. What is C++ stream classes? Design a C++ program to write some data into a file.

OR

Discuss various unformatted i/o functions with examples.

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2020

Full Marks - 70

Time - As in the Programme

The figure in the right hand margin indicate marks

Answer All question.

1. (a) Write the characteristics of OOP.

(b) Write C++ code for following description of the class “circle” AC++ class named “circle and its radius as three floating points numbers. Overload » operator to input the radius and center point by the user Also overload == operator which will check whether two circles are identical or not (Two circles are identical if their radius is s’ame.). The class should have the display function to display the center & radius .

OR

(a) Specify the principle of dynamic memory management operators. WAP to find the largest number from n numbers using those operators.

(b) WAP to print the pattern by entering the range. E.g.if range=5 then following pattern will come as output:

A

AB

ABC

ABCD

ABODE

2.(a) Take a class “meter” having only one data member to hold a length inputted in metre and centimetre. Then take a class “feet”. It is also having data member to hold a length inputted in feet & inches. Take a function convert _ and _ add () to convert the feet & inches into metre & cm. And add the result to the metre & cm.Value you have inputed through member function of respective classes. Write suitable friend function for both classes to calculate the above task and member functions to input the value & display the result.

(b) WAP to overload swap function to exchange values of two different classes using friend function. Write appropriate member functions for input and display and friend function.

2.(a) Take a class “meter” having only one data member to hold a length inputted in metre and centimetre. Then take a class “feet”. It is also having data member to hold a length inputted in feet & inches. Take a function convert _ and _ add () to convert the feet & inches into metre & cm. And add the result to the metre & cm. Value you have inputed through member function of respective classes. Write suitable friend function for both classes to calculate the above task and member functions to input the value & display the result.

(b) WAP to overload swap function to exchange values of two different classes using friend function. Write appropriate member functions for input and display and friend function.

OR

(a) write a program that contains of two classes Time 12 and Time 24. The first one maintains time on a 12 hour basis. Use a friend function convert () object which will

convert the object of time 24 into the object of Time12. Each class should have the data member's hour min & sec. Also each class should contain the member function to initialize their data members and functions to display the resultant Time.

(c) Differentiate between function overloading vs. Function Overriding.

3.(a) Briefly explain the functionalities of constructors. Write suitable examples for each type.

(b) WAP to find subtraction of two complex number objects by passing objects as parameter to the member function and return by object from function definition. Write required member functions for input, calculation and display.

OR

(a) Declare a class student with following data members: Name , Roll No., Branch & Marks it should contain marks in Phy, Chem & Math). It has also the following member functions:

(i) To input the details of a student

(ii) To find the total marks & average marks

(iii) To display the student report Write the complet program by using the concept of array of objects & implement the above class for five students.

(b) Implement a class time having 3 members hour, minute & second. One constructor should initialize them to 0. Another constructor should initialize them to fixed values. A member function should display it in hh:mm:ss format. Another member function should add to objects of type time passed as argument. The main function should create two initialized time object and one that is not initialized. Then both time objects should be added and stored in third object. Finally result of third object should be displayed.

4. (a) Create an abstract base class "Shape". Use this class to store two double type values that could be used to compute the area of figures. Derive two specific classes triangle & rectangle from base class "Shape". Add to the base class a member function get_data () to initialize base class data member function display_area () as a virtual function & redefine this function in the drived classes to suit their requirement. Using these classes, design a program, which will accept dimensions of a triangle or a reatangle & display the area.

(b) Write down the advantage of virtual base class with suitable example.

OR

(a) Define two classes Distance having data members metre, cm and Distance2 having data members foot, inch. Use conversion routines to convert the object of Distance class into the object of Distance2 class object & vice-versa.

(b) Write down different types of inheritance with examples.

5. (a) write down different mode of opening of file with syntax.

(b) Write a program to copy the content of a file into another.

OR

(a) write a program to read a binary file and check how many odd and even numbers are present in the file. Write separately into different files i.e. odd numbers to "ODD" FILEAND EVEN TO "EVEN" file respectively.

(b) Write a program to print the content of a file in reverse order.

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B.Sc. (ITM) (C++)

2019

1. Write the answer of following questions.

a) What is the use of parameterized constructor?

b) When a function is called as pure virtual function?

c) What is the need of copy constructor?

d) Define user defined data type.

e) How explicit conversion used to change the data type? .

f) what is the use of this pointer?

g) Explain dereferencing operator with example,

h) What is symbolic constant?

i) What is friend function?

j) What is the use of this pointer?

2. Explain different types of control structure used in C++ with example.

OR

Write short notes:

a) Benefits & Application of OPPs.

b) Memory Management Operator.

3. (a) Write a C++ Program to input data for employee code, name & department and print it using class and object.

(b) Discuss the situations where the inline function is used.

OR

(c) Describe inline function in C++ with example.

(d) What is private member function? How it is different from public member function? Explain it with example.

4. (a) How unary operator is overloaded? Explain it with example.

(b) Discuss various rules used to defined constructor in a class.

OR

(c) Write a C++ program to accept two different strings and add it without using library function.

(d) Define destructor How destructor used in C++ to release the memory space, explain it with example.

5. Explain the following inheritance with example.

I. Multilevel Inheritance.

II. Multiple Inheritance.

III. Hybrid Inheritance.

IV. Hierarchical Inheritance.

OR

a) Define Polymorphism. Discuss its advantages.

b) Write a C++ program to input the time taken by a person to cover the distance in Bicycle and Bus. Calculate total time to cover the total distance.

6. Explain the following terms with example.

(a) Stream classes.

(b) Error Handing in file operation.

OR

Write a database program to keep the train number, name, starting location and destination location in a data file “train” and read it.

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2018 (C++)
Full Mark -50

1. ANSWER ALL.

(a) What is static member function ?

(b) Write the mechanism of achieving run time polymorphism.

(c) What do you mean by pure virtual function in C++ ?

(d) Define implicit type conversation in C++ ?

(e) What is use of this pointer in C++ ?

(f) List some of the rules for operator overloading.

(g) Define virtual base class,

(h) Define data abstraction.

(i) Define Token.What are the tokens used in C++?

(j) What is called by reference?

2. (a) Explain the basic concept of object-oriented programming .

(b) Explain Nested classes and local classes with an example.

OR

(c) Discuss the classification of data types available in C++.

(d) Write a program in C++ that checks whether the given string is palindrome or not.

3. (a) Explain the features of new and delete operator discuss with example .

(b) Explain briefly about function overloading with a suitable example.

OR

(c) Write a program to explain the concept of array of objects.

(d) Discuss about access specifier. Write about declaring member function inside band outside a class.

4. What is constructor? Explain the concept of constructor overloading.Create a class price with data members as rupee and paisa. Using parameterized and copy constructor, Write a program in C++ to add two price objects and display results.

OR

(a) Which operators cannot be overloaded? Write steps to overload + operator so that it can add two complex numbers.

(b) What is a friend function? Why is it required? Explain with an example.

5. What is polymorphism ? How can we achieve runtime and compile time polymorphism in C++to demonstrate run time polymorphism.

OR

What is Inheritance? Discuss the different forms of inheritance supported by C++ with examples.

6.(a) Explain C++ stream classes.

(b) What is manipulator? Difference between manipulators and iosfunctions?

OR

(c) Explain the different modes of opening a file in C++ with examples.

(d) Explain Formatted I/O.

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Bsc (H) - Comp. Sc (C++)
2018
Full Marks -50
Group-A

1.(a) What is friend function?
(b) Define Static Variable.
(c) What do you mean by formatted console I/O operations?
(d) What is function prototyping?
(e) Classify data types in C++.
(f) What is the use of Scope Resolution Operator?
(g) What is pointer?
(h) What do you mean by keywords?
(i) Differentiate between while and do while loop.
(j) Define Identifiers.

Group-B

2.(a) What is operatoroverloading? Write a program to add two Complexno using binary + operator overloading.

OR

(b) Explain the control Structure used in C++.Write a C++ [8 program whereenter marks of five subjects and display the grades of the students according to his percentage.

PERCENTAGE	GRADE
>=80	S
79 to 60	A
59 to 40	B
<39	Fail

3. (a) What is Inline function? Explain with example.
(b) Write programs to swap two number using call by value and call by reference with output.

OR

(a) Write a program to program to perform following operation using function Overloading. [8
(I) Reverse a number
(II) Area of triangle
(III) Greatest among three numbers
4.(a) What is constructor? Explain different types of constructors with examples.
(b) What do you mean by type Conversion?

OR

(a) Define Array and its types. Write a program to check whether a 3*3 matrix is symmetric or not?
(b) What do you mean by Destructor? Explain with example.
5.(a) Explain any two with example.
(I) Multiple Inheritances
(II) Abstract Classes
(III) This pointer

OR

(a) What is virtual function? Explain with example.
(b) What do you mean by nesting of classes.
6.(a) Explain opening and closing of a file with example,
(b) What is Command line Argument?

OR

(a) How to handle Errors during File Operations.
(b) What do you mean by C++ Stream classes.

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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/Answer in one word. 1x8

   a. Object is a ____ of a class.

   b. In object-oriented programming languages, data abstractions could be achieved by ____.

   c. Write any one derived data type.

   d. If void is not written before main () then the main () function will return ____.

   e. The lifetime of extern variable is up to ____.

   f. Which pointer is usually known as zero pointer in C++ ?

   g. Write the name of any one access specifier.

   h. If the class is defined without a tag name, then it will be called as ____ class.

PART-II

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

   a. What is dangling pointer ?

   b. What is inline function ? Which functions could not be defined as inline function ?

   c. What is container class ?

(Turn Over)

d. List the bitwise operators available in C++ with their functionalities.

e. Write the usages of const keyword with syntax.

f. What is the meaning of aliasing ? Give an example.

g. What is ternary operator ? Give an example of its usage.

h. What is typecasting ? Give an example.

i. What is the usage of volatile keyword ?

j. Could you define a destructor as static ? Justify.

PART-III

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

a. Briefly explain different types of parameters passing.

b. What are the differences between const argument and default argument ?

c. How switch-case statement differs from if-else statement ?

d. Distinguish between the character array and integer array.

e. How is an array and a pointer related ?

f. How is a friend function different form an inline function ?

g. What are the different situations when a copy constructor is automatically invoked ?

h. What is the difference between constructor and a destructor ?

i. What is the significance of virtual base class ? When it is truly essential to make a class virtual ?

j. What is pure virtual function ? Explain its essence with an example.

PART-IV

Answer within 500 words each. 6x4

4. Write a program to read and write students' information into the file using the data members in a private access mode.

OR

Write a program to read a string using the getline () function and count the numbers of vowels in the string.

5. Distinguish between static and dynamic binding. Write a program to explain the same.

OR

How the operator overloading could be achieved using friend function ? Explain with an example.

6. Write a program to print the Fibonacci series using parameterized constructor.

OR

Write a program to demonstrate the functionalities of default arguments.

7. Write a program for the addition of two time values given in hh:mm:ss format using friend function.

OR

Write a program to find the smallest and largest element of an integer array.

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. Class may be considered as collections of ____.
   b. C++ is a ____ Oriented programing language.
   c. Who is the inventor of C++ language ?
   d. Some special words have specific meaning in programming and these are called ____.
   e. The data types of C++ programming languages are of ____ types.
   f. Void is a ____ data types.
   g. % operator is called as ____ operator.
   h. Among ++, ?:, and ~ operator, which one has highest precedence ?

PART-II

2. Answer any eight within two to three sentences. 1.5x8
   a. What is the functionality of bitwise operators ?
   b. What the '\a' escape sequence does ?
   c. How is == is different from = operator ?
   d. What is type casting ?
   e. What the break and continue statement does ?
   f. What is default argument ?
   g. What is the importance of NULL character in as string ?
   h. How the * and & operators are related to each other ?
   i. What is the significance of **this** pointer ?
   j. What is a friend function ?

(Turn Over)

PART-III

3. Answer any eight of the following (in maximum 75 words.) 2x8
   a. Distinguish between Structure and Class.
   b. What is a constructor ? Briefly explain all types of constructors.
   c. Explain the distinction among destructor and **delete** operator.
   d. What are the advantages of inheritance ?
   e. Briefly explain the significance of Virtual class.
   f. How pure virtual function differs from friend function ?
   g. What is the difference between default constructor and default argument constructor ?
   h. How is a friend function different from a member function ? Compare.
   i. What are the difference between array of pointers and pointer to pointer ?
   j. What is Bit-Field ? Briefly explain the usage of bit-field in structure and union.

PART-IV

Answer within 500 words each. 6x4

4. Write a program to reverse a string.

OR

Write a program to find a transpose of a two-dimensional array.

5. Write a program to find the smallest and largest element of an integer array.

OR

Write a program to find factorial of a given integer using recursion.

6. Write a program to generate Fibonacci series using recursion.

OR

Write a program to illustrate working of inheritance.

7. Write a program to demonstrate call by value and call by reference.

OR

Write a program to illustrate working of friend function.

2023

Full Marks - 60

Time - As in the Programme

The figure in the right hand margin indicates marks.

Answer All questions

1. Answer any eight of the following questions. [1 × 8 =8

(a) Define class.

(b) What is inheritance ?

(c) What is the smallest individual unit in a program ?

(d) Read three integers from keyboard & store them variables x, y and z.

(e) Which statement is used to make decision ?

(f) Which variable is designed to hold the address ?

(g) Define constructor.

(h) What is scope access operator ?

2. Answer any eight the following questions. [1.5 × 8=12

(a) Define variable and identifier.

(b) What are manipulators ?

(c) What is inline function ?

(d) Define pure virtual function.

(e) What is wild pointer ?

(f) What is object-oriented programming ?

(g) Define constructor overloading.

(h) What do you mean by type-casting ?

(i) Write the use of comma (,) operator.

(j) What is copy constructor ?

3. Answer any eight of the following questions (within 50 words). [2 × 8=16

(a) What is input and output stream ?

(b) Differentiate between while and do-while loop.

(c) Describe different parts of function.

(d) How many classes are used for file handling ?

(e) What is friend function and friend class ?

(f) What is function overloading ?

(g) How are static variables initialized ? Explain ?

(h) What is multilevel inheritance ?

(i) Write about dynamic initialization.

(j) What types of operation performed in a file ?

4. Answer any four of the following questions. [6 × 4=24

1. Discuss different features of object-oriented programing.

OR

What is a friend function ? Write a program illustrate the friend function.

[Cont...

2. Differentiate between constructor and destructor. Write a program to illustrate parameterized constructor.

OR

Write a program using class concept to make an outside function inline.

3. Write a program to explain how single and multilevel inheritance are used ?

OR

Write a program to demonstrate function overloading.

4. What do you mean by file ? Write a program in file demonstrating the following operation

(a) Open a file

(b) Write to file

(c) Read from file

(d) Close the file

OR

What are manipulators ? Write a program to display formatted output using manipulator.

OR

Write short notes (answer any TWO) :

(i) File Stream Operation

(ii) Command Line Argument

(iii) Call by Reference

(iv) Function Prototype

II - S - B.Sc. (Comp.Sc.) - Core - V - (Programming Using C++)

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 Object.

(b) What do you mean by inheritance ?

(c) Define Constructors.

(d) Write the difference between array & pointer.

(e) What is friend function ?

(f) Write the concept of polymorphism.

(g) What are inline functions ?

(h) Can we declare data numbers in public section ?

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

(a) What is object oriented programming ?

(b) How can we define functions outside of the class ?

(c) What is multiple inheritance ?

(d) What is pure virtual Function ?

(e) What is user defined data type ?

(f) What is access specifiers ? What are its type ?

(g) What are parameterized constructors ?

(h) What is the use of scope resolution operator ?

(i) Define constructor overloading.

(j) What is type casting ?

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

(a) Describe different data types used in C++.

(b) What is explicit and implicit typecasting ?

(c) What do you mean by copy constructor ?

(d) What is the use of input and output stream ?

(e) What are the steps in file operations ?

(f) What is destructor ? How many destructors can be used in a class ?

(g) What are manipulators ?

(h) How many classes are used for handling file ?

(i) What is constant member functions ?

(j) Write the use of library function.

[Cont...

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

(a) Write a program to enter the age of a person & display a message whether the person is eligible for voting or not.

OR

Write the syntax of inline function. Write a program to calculate the area of a rectangle using inline function.

(b) Write a C++ program to count how many objects are active and how many destroyed using constructor and destructors.

OR

Write a C++ program to input roll number, name and class of a student and print it using class and object.

(c) Write a program to add two complex number using operator overloading.

OR

Write different types of inheritance used in C++ with example.

(d) Write the formatted console I/O operations with example.

[Cont...

II - S - B.Sc. - (ITM) - Core - IV -
(Programming Using C++) - (OC)

2022

Full Marks - 50

Time - As in the Programme

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

1. Write the answer of the following questions : [1 x 10

(a) Explain dereferencing operator with example.

(b) What is symbolic constant ?

(c) What is friend function ?

(d) What is the use of this pointer ?

(e) What is the use of parameterized constructor ?

(f) When a function is called as pure virtual function ?

(g) What is the need of copy constructor ?

(h) Define user defined data type.

(i) How explicit conversion used to change the data type ?

(j) What is the use of this pointer ?

[P.T.O...

2. Explain different types of operators used in C++ with example. [8

OR

Write short notes :

(a) Benefits & Application of OOPs. [4

(b) Memory Management Operator. [4

3.(a) Write a C++ program to input data for studentid, name & course_name and print it using class and object. [4

(b) Discuss the situations where the inline function is used. [4

OR

(c) Describe inline function in C++ with example. [4

(d) What is private member function ? How it is different from public member function ? Explain it with example. [4

4.(a) How unary operator is overloaded ? Explain it with example. [4

(b) Discuss various rules used to define constructor in a class. [4

OR

(c) Write a C++ program to accept two different strings and add it without using library function. [4

[Cont...

(d) Define destructor. How destructor used in C++ to release the memory space, explain it with example. [4

5. Explain the following inheritance with example. [8

(i) Multilevel Inheritance.

(ii) Multiple Inheritance.

(iii) Hybrid Inheritance.

(iv) Hierarchical Inheritance.

OR

Define polymorphism. Discuss its advantages. Write a C++ program to input the time taken by a person to cover the distance in Bicycle and Bus. Calculate total time to cover the total distance. [8

6. Explain the following terms with example. [8

(a) Stream Classes.

(b) Error Handling in File Operation.

OR

Write a database program to keep the train number, name, starting location and destination location in a data file “train” and read it. [8

II - S - BCA - CC - 3 -

(Programming Using C++) - (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 = 8

(a) How an array is declared in C++ ?

(b) What is syntax of defining a constructor of class A ?

(c) What is meant of ofstream in C++ ?

(d) Define parameterized constructor in C++ ?

(e) _____ must be specified when we construct an object of class ostream.

(f) How many types of representation are there in the string ?

(g) _____ is used to terminate the function declaration in C++.

(h) A function declared as "friend" can always access the data in _____.

(i) What is Abstract class in C++ ?

[Cont...

Group – B

2. Answer any EIGHT within TWO to THREE sentence : [8 x 1.5 = 12

(a) What is the scope resolution operator ?

(b) Name the operator which cannot be overloaded ?

(c) What is function overloading ?

(d) What is new operator ?

(e) What is the essence of this keyword ?

(f) State the access specifier available in C++.

(g) What is default argument ?

(h) State the usage of inline keyword in C++.

(i) What is the role of virtual keyword in inheritance ?

(j) What is compile time polymorphism ?

Group – C

3. Answer any 8 question within 75 words :[8 x 2 = 16

(a) State the manipulator available with C++.

(b) What is friend function ?

(c) What is constructor ? State its types.

[Cont...

(d) Briefly explain about the memory management operator.

(e) Compare break and continue statement.

(f) Differentiate between call-by-value and call-by-reference.

(g) State the essence of static keyword in C++.

(h) Briefly explain for loop with a suitable example.

(i) What is Stream ? Briefly explain about the File Stream.

(j) How can you detect the end-of-file using file stream.

Group – D

4. Answer all question : [4 x 6 = 24

(a) Differentiate between C and C++.

(b) Write a C++ program to input a no and find out its factorial. (Example input a no 5 and its output should be 120.)

OR

(a) Discuss the Default argument function in C++.

(b) Write a C++ program to print all the prime no between 1-1000.

[Cont...

5. What is Nested member function in C++ ? Write a program using nested member function in C++ to enter three no's in keyboard and find the biggest no among them using a function name (MAX) ?

OR

Discuss the Copy constructor in C++ ? How is it defined in the class ? Give an example.

6. What is Pure Virtual Function ? Explain with an example.

OR

Explain Nested Class in C++. Write a program using nested class in C++ to reverse a no.

7. Explain Class Structure for File Stream Operation.

OR

Write a program to copy contents of one file to another file.

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]

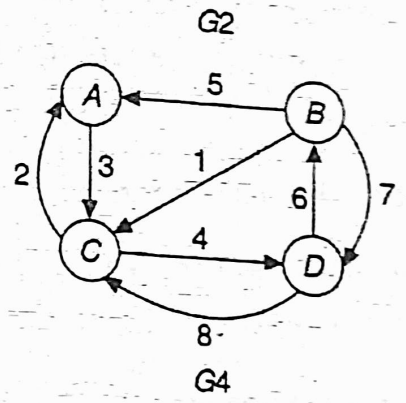
[Cont...

(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

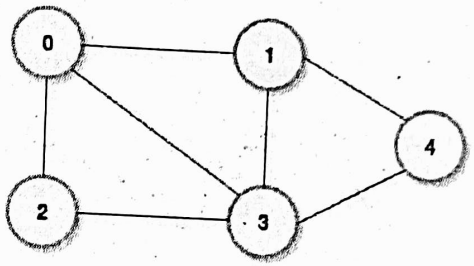
8. a. Construct a binary tree from its given preorder and inorder traversal. [4

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...

(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...

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.Cs (H) Ex-224
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)

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 ?

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.

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

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.

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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.

***

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.

***

(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...

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...

(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

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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

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Elaborately discuss the process of communication ?

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(Any passage of 150 words)

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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.

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   (a) Communication is a two-way process.
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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...

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...

(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.

(24-23) 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 ?

[P.T.O....

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.

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 ପତନକୁ ____ 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.

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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

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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.

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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.

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.

***

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?

***

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.

***

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...

II - S - BCA - Core - 3 - Minor - 1 - (Probability & Statistics) - (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 question : [1 x 10

(a) Define Event.

(b) P (A) + P ($\bar{A}$) = ?

(c) Write the value of $M_{\bar{x}}(0)$?

(d) Write the formula B (a, b) in Beta Distribution.

(e) Write the formula of E [x] for discrete random variable.

(f) Define Sample.

[Cont....

(g) Write the formula of sample mean.

(h) If we roll a dice once. Find the probability getting a no. greater than 4.

(i) $\int_{-\infty}^{\infty} f(x)dx = ?$

(j) Mean is moment of degree _____.

Part – II

2. Answer all : [2 x 9

(a) Prove that if X is a discrete random variable then E [ax +b] = a E [x] + b.

(b) If an odd number comes up on tossing a dice. Find the probability of its being prime number.

(c) A can success in 80% exams & B in 75%. Find the probability that they are likely to not succeed same time in same exam.

(d) Define class interval & class mark.

[Cont....

(e) Find the expected value of continuous random variable, whose p.d.f is given by $f(x) = \begin{cases} x^3, & 0 \le x \le 2 \\ 0, & otherwise \end{cases}$.

(f) 5 cards are drawn from deck of cards. Find the p.m.f of getting 2 diamonds by Binomial distribution.

(g) Prove that $\acute{\Gamma}(\alpha+1) = \alpha\,\acute{\Gamma}(\alpha)$, where $\acute{\Gamma} = Gamma\ distribution.$

(h) The mean and variance of a Binomial Distribution are 8 and 8/7 respectively then find $p(X \ge 2)$.

(i) Define Co-relation and Co-efficient of co-relation.

Part – III

3. Answer any EIGHT : [5 x 8

(a) If, $f(x) = \begin{cases} \frac{6}{7}\left(x^2 + \frac{xy}{2}\right), & 0 < x < 1, 0 < y < 2 \\ 0 & otherwise \end{cases}$. Check whether f (x, y) is joint probability density function or not.

[Cont...

(b) Given that the joint probability density function $f(x,y)=\begin{cases} Kxy, & 1\le x<0, 0<y<1 \\ 0, & otherwise \end{cases}$. Find the value of K and conditional density of X and Y.

(c) If X, Y, Z are random variable such that $\mu_x = 2$, $\mu_y = 4$, $\mu_z = 3$, $\sigma_X^2 = 2$, $\sigma_Y^2 = 5$, $\sigma_Z^2 = 4$ co.var (x, y) = - 2, co-var (x, z) = 1 , co-var (y, z) = 1. Find the Mean and Variance of random variable W = 3X - 4Y + Z.

(d) Find moment generating function of random variable having $f(x)=\begin{cases} e^{-x}, & x>0 \\ 0, & otherwise \end{cases}$. Also find μr.

(e) Let, X be a continuous variable with pdf given by

$$f(x)=\begin{cases} ax & 0\le x\le 1 \\ 2a & 1\le x\le 2 \\ -ax^{2+3a}, & 2\le X\le 3 \\ 0 & 3<x \end{cases}$$

Determine the constant 'a'.

[Cont...

(f) Let 'X' be a Geometric random variable. Then, prove that for $x=n$, $\sum_{n=1}^{\infty} p(n)=1$.

(g) A newly married couple wished to be parent of 3 children. If the 1st child is a girl. Find the probability she has 2 brother.

(h) If E & F are independent event , show that E^c & F^c are Independent.

(i) If X is uniformly Distribution with Mean = 1 & Variance 4/3. Then Find P (X < 0).

(j) In a 3 day exam between A & B. Find mean and variance of winning of A. Where winning probability of A in exam is 2/5.

Part – IV

4. Answer any FOUR : [6 x 4

(a) State and prove Chebyshev's Theorem.

[Cont...

(b) The joint PMF of (X, Y) is given by P (x, y) = K (3x + 2y), x = 0, 1, 2, y = 1, 2, 3 . Then find

i. K

ii. Marginal probability distribution if 'X'.

iii. Marginal probability distribution of 'Y'.

iv. Conditional distribution of 'X' given y = 1.

v. Conditional distribution of 'Y' given x = 2.

(c) The joint pdf of (x, y) is,

$f(x) = \begin{cases} \frac{2}{3(x+2y)} & 0 < x < 1, 0 < y < 1 \end{cases}$. Find conditional mean and conditional variance when y = 1/2.

(d) If 'X' is a Binomial Distribution P (n, θ), where the parameter n & θ representing no. of trial and probability of success then prove that E [x] = nθ.

[Cont...

(e) For infinite population with mean 'μ' and variance = σ^2, if $X_1, X_2, \ldots\ldots X_n$ Constitute a random sample then $E\left[\overline{X}\right] = \mu$ and var $\overline{X} = \frac{\sigma^2}{n}$.

BSc(Computer Science)

SEMESTER - I

SUBJECT: PROBABILITY & STATISTICS

PAPER CODE: CORE-III

Time – As per Syllabus **Full Marks – 80**

1. Answer the following Questions. [1 X 8 =8]
   (a) Write the name of any two parametric test.
   (b) Define probability with suitable example.
   (c) Define Sample space with suitable example.
   (d) Write down properties of probability.
   (e) Write the statement of addition theorem of probability in case of three events.
   (f) The probability that at least one of the events A and B occurs is 0.6.If A and B occurs simultaneously with probability is 0.2, then find $P(\overline{A}) + P(\overline{B})$.
   (g) Write the statement of multiplication theorem of probability in case of three events.
   (h) What do you mean by conditional probability?

2. Answer any eight of the following Questions. [2 X 8=16]
   (a) A dice is rolled once. What is the probability that it is prime?
   (b) Given that P(A)=3/5 , P(B)=1/5, find P(A or B), if A and B are mutually exclusive event.
   (c) What do you mean by mutually exclusive event?
   (d) Define intersection of two sets with suitable example.
   (e) Two unbiased dice are thrown. Then find the probability that
   (i)Getting a sum is 6.(ii) the number shown are equal(iii) the difference of number are shown is equal 1 (iv) the first dice shown is 6 (v) Total number greater than 8.
   (f) Three coins are tossed simultaneously. Find the probability of the following.
   (i) Getting exactly two head. (ii) Getting at most two head.
   (g) If a card is drawn from a packet of 13 cards numbered 1 to 13 find the probability of getting a number which is (i) A multiple of 5.(ii) A multiple of 3 and 4. (iii) A multiple of 3 or 4.
   (h) State and prove addition theorem of probability both two and three events.
   (i) If A and B are two mutually exclusive events of an experiment. If P (A')=0.65, P(AUB)=0.65 , P(B)= P, Find value of P.
   (j) Write the formula of sample correlation coefficient.

3. Answer any eight of the following Questions. [3 X 8=24]
   (a) If E and F are two events such that P(E)=1/4, P(F)=1/2 and P(E∩F) =1/8 then find
   (i) P(EUF) (ii) P(E'∩F')
   (b) If A and B are independent event then prove that A' and B' are also independent event.
   (c) The probability of two events A and B are 0.25 and 0.50 respectively. Then probability of their simultaneous occurrence is 0.14. Find the probability that neither A nor B.
   (d) If A and B are two mutually exclusive events, then prove that A and B' are mutually exclusive event.
   (e) Three coins are tossed simultaneously. Find the probability of the following
   (i)Getting at least two head. (ii)Getting NO head.
   (f) Define discrete distribution function.
   (g) What is the relationship between distribution function and density function?
   (h) What is the formulae of mean and variance of Poisson distribution?
   (i) Write the properties of continuous random variable.
   (j) What are the formulae of hyper geometric distribution?

4. Answer any four of the following Questions. [8 X 4=32]

(a) The random variable $'X'$ has the following probabilities.

Function values of $'X'$

x	-2	-1	0	1	2	3
$p(x)$	0.1	k	0.2	$2k$	0.3	k

Then determine i) Mean(μ) ii) Variance(σ^2) iii) Standard deviation(σ)

OR

If $'X'$ be normal with Mean$(\mu) = 10$ and Variance$(\sigma^2) = 4$, then find

i) $P(X > 12)$ ii) $P(X < 10)$ iii) $P(X < 11)$ iv) $P(9 < X \leq 13)$

Given that $\varphi(0) = 0.5$ $\varphi(0.5) = 0.6915$ $\varphi(1) = 0.8413$ $\varphi(1.5) = 0.9332$

(b) Consider ten coins are tossed simultaneously. Find the probability of getting at least 6 Heads by using binomial distribution.

OR

Let $'x'$ be a continuous random variable with probability distribution function

$$F(x) = \begin{cases} ax, & 0 \leq x \leq 1 \\ a, & 1 \leq x \leq 2 \\ -ax + 3a, & 2 \leq x \leq 3 \\ 0, elsewhere\ i.e\ x > 3\ i.e\ 3 < x < \infty \end{cases}$$

Then find, i) value of $'a'$ ii) $P(x \leq 1.5)$

(c) State and prove Bayes' theorem.

OR

In a partially destroyed laboratory, recorded of an analysis of correlation data, the following results only are legible, variance of X=4, regression equations are 4x- 5y+33= 0 and 20x-9y-157=0 .Then find (i) Mean$(\bar{X})$,Mean$(\bar{Y})$ (ii) r(X,Y) (iii) σ_Y.

(d) Find the sample regression line of Y on X for the sample (2,12),(5,24),(9,33) and (14,50).

OR

State and prove addition theorem of probability for three events.

****

I – S – B. Sc. – Comp. Sc. (H) – CBCS
GE – I – (Prob. & Stat.) –B

2021

Full Marks :- 50

Time – As in the Programme

The figure in the right hand margin indicates marks.

Answer all questions.

GROUP A

1. Answer all questions **[1*10=10]**

a. What is expectation value?
b. What is variance?
c. Write down the relation between variance and standard variation?
d. What is the formula for binomial probability?
e. Calculate mean of 2, 11, 5, 67, 89, 9?
f. Two cards are drawn from a standard of 52-card playing deck. What is the probability that the draw will yield an ace and a face card?
g. What is the standardized normal distribution?
h. Explain central limit theorem?
i. Define probability of an event?
j. How many different seven-digit telephone numbers can be formed if the first digit cannot be zero?

GROUP B

(**Answer All Questions. Each Carrying 8 Marks**)

2. State and explain Bayes' rule?

OR

Two cards are drawn from a deck of 52 cards. Calculate the probability that the draw includes an ace and a ten.

3. Calculate the mean and standard deviation of Poission distribution?

OR

Find p(x=2) for poison random variable with for poison random variable with $\mu = 2.2$

4. Find 90% confidence interval for population mean μ for the values $n = 50, x = 22.8, s^2 = 3.44$.

   OR

   A population consists of N=5 numbers: 3,6,9,12,15. If a random sample of size n=3 is selected without replacement, find the sampling distributions for the sample mean $\bar{x}$ and the sample medium m.

5. A random sample of size n = 49 is selected from a population with mean $\mu = 53$ and standard deviation $\sigma = 21$.
   a. What will be the approximate shape of the sampling distribution of $\bar{x}$?
   b. What will be the mean and standard deviation of the sampling distribution of $\bar{x}$?

   OR

   The average weekly earnings for female social workers is ₹ 670. Do men in the same positions have average weekly earnings that are higher than those for women? A random sample of n=40 male social workers showed $\bar{x}$=₹725 and s=₹102. Test the appropriate hypothesis using $\alpha = 0.01$.

6. Find a least square line for the following data

x	-2	-1	0	1	2
y	1	1	3	5	5

   OR

   Find the coefficient of correlation for the following table

x	-2	-1	0	1	2
y	2	2	3	4	4

I - S - BSc - (H) - Comp.Sc. - GE - A - 1 -

(Prob & Stat)

2019

No-154

Full Marks - 50

Time - As in the Programme

The figures in the right hand margin indicates mark.

Answer ALL questions.

GROUP - A

(Answer All Questions. Each Carries 1 mark)

1.(i) What is P - value ?

(ii) What is Sampling ?

(iii) What is Variance ?

(iv) What is Binomial Probability Formula ?

(v) Explain Central Limit Theorem ?

(vi) What is Null Hypothesis ?

(vii) Give Example of Central Limit Theorem ?

(viii) What is One Sample T - test ?

(ix) What is Alternative Hypothesis ?

(x) Calculate mean of 2,11,5,67,89,9.

GROUP - B

(Answer All Questions. Each Carries 8 marks)

2.(a) State and explain Bayes' rule.

[Cont...

OR

(b) A smoke detector system uses two devices A and B. If smoke is present the probability that it will be detected by device A is 0.95 and by device B is 0.98, and for both the devices is 0.94. Then find the probability that it will not be detected.

(c) Two people enter in room and their birthdays will be recorded. Then find the probability that the two people have a specific pairs of birthdays.

3.(a) Calculate the mean and standard deviation of Poission distribution.

OR

(b) Find P (x = 2) for Poison random variable with $\mu = 2.2$

4.(a) Find 90% confidence interval for population mean μ for the values $n = 50, \bar{x} = 22.8, s^2 = 3.44$

OR

(b) Assume that a school district has 10,000 6th graders. In this district, the average weight of 6th grader is 80 pounds, with a standard deviation of 20 pounds. Suppose you draw a random sample of 50 students. What is the probability that the average weight of a sampled student will be less than 75 pounds ?

[Cont...

5. Table give B (before) and A (after) Very-low-calorie diet (VLCD) Treatment treatment data for obese female patients in a weight-loss program.

Table of weight Loss Data for Example 7.4.1

Weights (kg) of Obese Women Before and After 12-Week VLCD Treatment

B:	117.3	111.4	98.6	104.3	105.4	100.4	81.7	89.5	78.2
A:	83.3	85.9	75.8	82.9	82.3	77.7	62.7	69.0	63.9

We calculate di = A-B for each pair of data resulting in negative values meaning that the participants lost weight.

We wish to know if we may conclude, at the 95% confidence level, that the treatment is effective in causing weight reduction in these people.

OR

Acme Corporation manufactures light bulbs. The CEO claims that an average Acme light bulb lasts 300 days. A resercher randomly selects 15 bulbs for testing. The sampled bulbs last an average of 290 days, with a standard deviation of 50 days. If the CEO's claim were true, what is the probability that 15 randomly selected bulbs would have an average life of no more than 290 days ? Solve using t Distribution.

[Cont...

6. Find the value of the correlation coefficient from the following table :

SUBJECT	AGE X	GLUCOSE LEVEL Y
1	43	99
2	21	65
3	25	79
4	42	75
5	57	87
6	59	81

OR

A researcher uses a regression equation to predict home heating bills (dollar cost), based on home size (square feet). The correlation between predicted bills and home size is 0.70. What is correct interpretation of this finding ?

(a) 70% of the variability in home heating bills can be explained by home size.

(b) 49% of the variability in home heating bills can be explained by home size.

(c) For each added square foot of home size, heating bills increased by 70 cents.

(d) For each added awure foot of home size, heating bills increased by 49 cents.

(e) None of the above.

NO-43.

I - S - B.Sc. - Comp. Sc. -

(H) - GE - I - (Prob.& Stati.)

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 carries 1 mark)

I. What is the probability of rolling a 5 when a die is rolled ?

II. What is Compound probability ?

III. Find the probability of selecting a black card or a 6 from a deck of 52 cards.

IV. What is Independent Event.

V. A coin is tossed twice. What is the probability of getting two consecutive tails ?

VI. A pack contains 4 blue, 2 red and 3 black pens. If 2 pens are drawn at random from the pack,

[Cont....

What is the probability of drawing 2 blue pens and 1 black pen ?

VII. What is the probability of drawing a king and a queen consecutively from a deck of 52 cards, without replacement.

VIII. When two dice are rolled, find the probability of getting a greater number on the first die than the one on the second, given that the sum should equal 8.

IX. State Baye's Theorem.

X. What is Testing hypothesis ?

Group - B

(Answer all questions. Each carries 8 marks)

1.(a) Explain Bayes' rule.

(b) Prove that $P(A \cap B) = P(A)P(B \mid A)$.

$P(A \cap B) = P(B)P(A \mid B)$.

OR

(c) A box contains three coins : two regular coins and one fake two-headed coin (P (H) = 1 P (H) = 1),

- You pick a coin at random and toss it. What is the probability that it lands heads up ?

[Cont....

- You pick a coin at random and toss it, and get heads. What is the probability that it is the two-headed coin ?

(d) You toss a fair coin three times :

(a) What is the probability of three heads, HHHHHH ?

(b) What is the probability that you observe exactly one heads ?

(c) Given that you have observed at least one heads, what is the probability that you observe at least two heads ?

2.(a) Calculate the mean and standard deviation of Poission distribution.

(b) It is known that 13% of all items produced by a machine are defective, If 7 items are selected at random.

(a) What is the probability that exactly 2 times are defective ?

(b) What is the probability that at least one the iterms selected is defective ?

OR

[Cont...

(c) Sam has not prepared for the upcoming exam. Exam is completely based on multiple choice questions with 5 options for each question and only one correct answer. There are 30 questions in the exam and Sam attempted all questions betting on his luck.

1. What is the probability that exactly 17 questions are correct ?
2. What is the probability that at least 2 questions are wrong ?

(d) Calculate the mean and standard deviation of binomial distribution.

3.(a) The random variable X can assume the values 1 and ? 1 with probability 1/2 each. Find

(i) The moment generating function.

(ii) The mean, the variance, the coefficient of skewness and the kurtosis excess.

(b) Explain the concept of Central Limit Theorem.

OR

[Cont...

(c) Assume that a school district has 10,000 6th graders. In this district, the average weight of a 6th grader is 80 pounds, with a standard deviation of 20 pounds. Suppose you draw a random sample of 50 students. What is the probability that the average weight of a sampled student will be less than 75 pounds ?

(d) State and explain the concept of large sample estimation.

4. Table gives B (before) and A (after) Very-low-calorie diet (VLCD) Treatment treatment data for obese female patients in a weight-loss program.

Table of Weight Loss Data for Example 7.4.1

Weights (kg) of Obese Women Before and After 12-Week VLCD Treatment

B:	117.3	111.4	98.6	104.3	105.4	100.4	81.7	89.5	78.2
A:	83.3	85.9	75.8	82.9	82.2	77.7	62.7	69.0	63.9

We calculate di = A-B for each pair of data resulting in negative values meaning that the participants lost weight.

[Cont...

We wish to know if we may conclude, at the 95% confidence level, that the treatment is effective in causing weight reduction in these people.

OR

Write short notes on :

I. Type I error

II. Type II error

III. Testing of hypothesis

IV. Random Sampling

5. The table below shows the scores for 12 students on two Mathematic exam papers. For the first paper calculators were allowed and for the second paper they were not.

Paper 1 (Xx)	**74**	**73**	**65**	**75**	**68**	**72**	**69**	**71**	**83**	**68**	**68**	**73**
Paper 2 (Yy)	**75**	**83**	**69**	**77**	**71**	**77**	**68**	**76**	**84**	**69**	**71**	**75**

(a) Write down the mean score on Paper 1.

(b) Write down the standard deviation of the scores for Paper 1.

[Cont...

(c) Find the number of students that had a score of more than one standard deviation below the mean on Paper 1.

(d) Write down the correlation coefficient, rr.

(e) Write down the equation of the regression line of yy on xx.

Another student scored 75 on Paper 1.

(f) Calculate an estimate of his score on Paper 2

Another student scored 88 on Paper 1.

(g) Determine whether you can use the equation of the regression line to estimate his score on Paper 2. Give a reason for your answer.

The following table shows the relationship between the number of workers and the amount of time in minutes it takes them to harvest the sugar cane in a particular field.

[Cont....

Workers (nn)	Time (tt)
3	799
4	703
5	645
6	570
8	422
9	322
10	241

(a) Find the equation of the regression line of tt on nn.

(b) Find the value of the Pearson's product-moment correlation coefficient, r.

(c) Use the regression equation to find how long it would take seven workers to harvest the sugar cane.

II - S - BCA - GE / IC - 2 - (Statistics) - (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. Fill in the blanks : [8 x 1 = 8

(a) The concept of regression given by _____.

(b) When data collected by the researcher himself for first time is known as _____.

(c) Population standard deviation denotes by _____.

(d) Random sampling method is otherwise called as _____.

(e) Ogive and frequency polygon comes under _____ types of diagram.

(f) The sum of deviations of the items from the arithmetic mean is always _____.

(g) _____ is that value in a series of observation which occurs with the greatest frequency.

(h) _____ refers to the lack of symmetry.

[Cont...

Group – B

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

(a) What is Mode ?

(b) Define mean deviation.

(c) Give short explanation on mesokrutic distribution.

(d) What is symmetrical distribution ?

(e) What is Range ?

(f) What is standard deviation ?

(g) Define attribute.

(h) Statethe difference between positive association and negative association.

(i) What do you mean by curve fitting ?

(j) What is geometric mean ?

Group – C

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

(a) If the combined mean of the two group is 403 .The mean of groupA and group B is10 and 8. The observations of group A is 15. Find out the observations of group B ?

(b) What are the differences between quantitative data and qualitative data ?

[Cont...

(c) Calculate coefficient of correlation if bxy = 0.2 and byx = 1.8.

(d) Find out range from following data :

X - 3, 7, 9, 4, 6, 8, 11, 12.

(e) Find out harmonic mean if X - 20, 5, 10, 25, 15.

(f) What are the steps to calculate mean ?

(g) Standard deviation of a data series is 9.4 and mean is 20. What is the value of coefficient of variance ?

(h) Find out quartile deviation 1^{st} quartile is 30 and 3^{rd} quartile is 120.

(i) What is Regression ?

(j) Define Kurtosis.

Group – D

Answer all the questions : [4 x 6 = 24

4. What is Statistics ? Explain about types of statistics.

OR

Give a brief explanation on graphical presentation.

5. Calculate standard deviation and coefficient of variance :

X - 25, 27, 31, 32, 35, 42.

[Cont...

OR

State about the methods of calculating skewness.

6. By using the data mean of x series = 25 and mean of y series = 30, byx = 1.6 and bxy = 0.4, find :

(a) The regression equation y on x.

(b) What is the most likely value of y when x = 60 ?

(c) What is the coefficient of correlation between x and y.

OR

What is Correlation ? State about types of correlation.

7. State about the methods of studying association.

OR

State about methods of least square.

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.

BCA 2nd Ex.-25
3.11.25

13CA

+3-II-S-NEP-Major/Minor-SEC-I-Arts/Sc/Com-AA&LR

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.