END SEMESTER EXAMINATION, JUNE-2024
DATA STRUCTURE AND ALGORITHMS (CSE 2001)

Programme: B.Tech. **Semester: 2nd**
Full marks: 60 **Time: 3 hours**

Subject Learning Outcome	*Taxonomy Level	Question Number	Marks
Ability to state and explain the basic programming syntax, semantics, building blocks.	L1, L2	2(a,b), 4(a,b,c)	10
Ability to develop java programs using programming constructs like conditional statements, looping, array, methods and class.	L1, L2, L3	2c, 3(a,b,c), 7c	10
Ability to analyze, debug and test the programs and correctly predict their outputs.	L2, L3	1(a,b,c), 10c	8
Ability to differentiate the behaviors of different data structures and their memory representations.	L3, L4	5(a,b,c), 9(a,b,c), 10a)	14
Ability to choose appropriate data structures that efficiently model the problem of interest.	L3, L4	6(a,b,c), 7(a,b)	10
Ability to apply advanced programming techniques for developing solutions of different problems.	L3, L4	8(a,b,c), 10b	8

*Bloom's taxonomy levels: Remembering (L1), Understanding (L2), Application (L3), Analysis (L4), Evaluation (L5), Creation (L6)

Answer all questions. All questions carry equal marks. All bits of each question carry equal marks.

1. (a) What will the output of the code given below with method call *show(3)*. [2]

```
public static void show(int n) {
    if(n>0) {
            show(n-1);
            System.out.print(n+" ");
            show(n-1);
    }}
```

(b) Find the time complexity of the following code using Big 'Oh' notation. [2]

```
public static void show(int n)  {
    for(int i=1;i<=n;i++)  {
          for(int j=1;j<=n;j*=2)  {
              System.out.println(i+" "+j);
          }
    }}
```

(c) What will be the output of the code in 1(b) with the method call show(5); in main method. [2]

2. (a) Can a method be both static and abstract? Justify your answer. [2]

(b) Define a class called **Book** with instance variables BName, BEdition, and BPrice. Use constructor to initialize the instance variables of the class. Add another instance method display() to display the book information. [2]

(c) Write a tester class for Book class of 2(b) to create an array of 5 objects and display the book details which have the maximum price. [2]

3. (a) Design a Java program for managing student attendance and checking the eligibility for exams. Create a **Student** class with attributes such as 'totalClassesHeld' and 'classesAttended'. Implement methods to calculate the percentage of classes attended and to check if the student is eligible to sit for exams based on the attendance criteria (i.e., attendance should be at least 75%). [2]

(b) Write a Java program to create a banking system with the following: an interface **Account** with abstract methods void deposit(int amt) and void withdraw(int amt). Two classes **SavingsAccount**, and **CurrentAccount** implements the Account interface. Both these classes are with attributes accountNumber, balance and override the methods of interface. You can add appropriate constructors and a display() method. Write a tester class to create object of the classes SavingsAccount and CurrentAccount, set their details and display after some deposit, withdraw operations. [2]

(c) Create a class **Date** with attributes dd, mm, yy and a method displayDate(). Write a Java program to create two Date objects and display the later Date. [2]

4. (a) Create a generic class **Calculator** with a method divide(T n1, T n2). Write a Java program to divide two appropriate numbers. [2]

(b) Identify possible exceptions that may occure in 4(a). [2]

(c) Write a Java program to compute and print square root of an integer. If the numer is -ve your program should throw an user defined exception **NegativeNumberException** and print a message "Negative Number Not Allowed". [2]

5. (a) Convert the following infix expression into postfix using stack. G*H^I+(J-K^L/M)*N [2]

(b) Evaluate the following postfix expression using stack.
12, 2, 3, *, /, 3, 4, *, *, 2, 2, +, /
What is the stack top element after third * operation. [2]

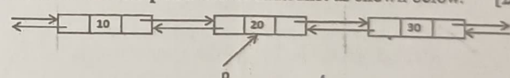
(c) Count the number of push and pop operations performed in the evaluation process of 5(b). [2]

6. (a) Consider a class **Node** for single linkedlist that store student information such as regNo and mark. Write a Java method to insert a new node at the end with header *void insEnd()*. [2]

(b) Write the loop statements to insert five such nodes in a linkedlist by calling the *void insEnd()* method written in 6(a) and display the linkedlist. [2]

(c) Write the java statements to find reference of both last and second last node in a single linkedlist using only one loop. [2]

7. (a) Write the Java statements to delete the node that is referred by the reference variable **p** in a double linkedlist as shown below. [2]



(b) Write the Java statements to insert a new node before the node referred by **p** in 7(a). [2]

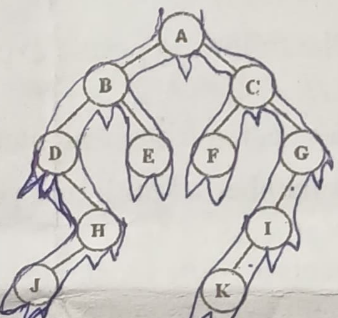
(c) Write a Java method to insert a new node at any node number in a double linkedlist. [2]

8. (a) Write a stack-based algorithm to reverse a string. Describe how the algorithm works with the input "INDIA". [2]

(b) Write Java methods to implement insert operation in a linear queue using linkedlist. [2]

(c) Let's consider the following operations in the array implementation of a linear queue of max size (MAX=5): ins(10), ins(20), ins(30), ins(40), del(), ins(50), ins(60), del(), ins(70), ins(80), del(), del(). ins() and del() are methods for insert and delete operations. Find the front, rear index values. Also find queue[front] and queue[rear]. [2]

9. (a) Write the in-order and post-order traversal sequence for the following diagram. [2]



(b) List all the nodes that are at same height and depth in the tree given in 9(a). Find the degree of these nodes. [2]

(c) Given the following information, construct the binary tree.
Pre-order: PQZSUWRTVXY
In-Order : ZQUWSPTXVRY [2]

10. (a) Draw the binary search tree by performing the following operations in the given sequence: ins(50), ins(20), ins(70), ins(10), ins(35), ins(30), ins(32), del(20), ins(34), ins(33), ins(60), ins(80), ins(65), ins(75), ins(63), del(70). [2]

(b) Write a recursive method to implement binary search in an array. Method header: *int binarySearch(int a[], int lb, int ub)* [2]

(c) What is/are the necessary conditions for binary search? Compare the number of comparisons required to search an element in worst case for linear search and binary search considering size of the array as 1024. [2]

END-SEMESTER EXAMINATION, June-2024
INTRODUCTORY GRAPH THEORY (CSE 1004)

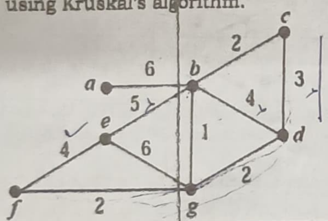
Programme: B.Tech(CSE & CSIT) **Semester: 2nd**
Full Marks: 60 **Time: 3 Hours**

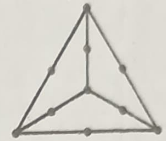
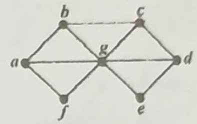
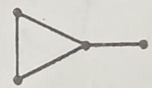
Subject/Course Learning Outcome	*Taxonomy Level	Ques. Nos.	Marks
Able to understand the fundamental concepts of graphs and apply them to study graph isomorphisms, Eulerian graphs, graphic sequences and digraphs.	L2, L3, L3, L3, L3, L3	1(a),1(b), 1(c),2(a), 2(b),2(c)	2,2, 2,2, 2,2
Able to understand the concepts of trees, spanning trees and study its various concepts and apply the Kruskal's algorithm to find the minimum spanning tree and Dijkstra's algorithm to find the shortest path of connected weighted graphs.	L3, L3, L3, L3, L3, L3	3(a),3(b), 3(c),4(a), 4(b), 4(c)	2,2, 2,2, 2,2
Able to understand matchings and factorization of graphs and its various applications.	L3, L3, L3	5(a),5(b), 5(c)	2,2, 2
Able to understand and analyze coloring of graphs, it's enumerative aspects and its applications.	L3, L3, L3, L3, L3, L3	6(a),6(b), 6(c),7(a), 7(b),7(c)	2,2, 2,2, 2,2
Able to understand and analyze planar graphs and its various applications.	L3, L3, L3, L3, L3, L3	8(a),8(b), 8(c),9(a), 9(b),9(c)	2,2, 2,2, 2,2
Able to understand the concepts of line graphs, edge-coloring and the various aspects of Hamiltonian cycles.	L3, L3, L4	10(a),10(b), 10(c)	2,2, 2

*Bloom's taxonomy levels: Remembering (L1), Understanding (L2), Application (L3), Analysis (L4), Evaluation (L5), Creation (L6)

Answer all questions. Each question carries equal mark.

1.	(a)	Define decomposition of graphs and give an example of a graph which decomposes into copies of P_3.	2
	(b)	Draw all nonisomorphic graphs of order 3.	2
	(c)	Show that a k-regular graph with n vertices has $nk/2$ edges.	2
2.	(a)	Show that if $k > 0$, then a k-regular bipartite graph has the same number of vertices in each partite set.	2

	(b)	Prove or disprove: The complement of a simple disconnected graph must be connected.	2
	(c)	Prove that in a digraph G $$\sum_{v\in V(G)} d^{+}(v) = e(G) = \sum_{v\in V(G)} d^{-}(v)$$	2
3.	(a)	Prove that every edge of a tree is a cut-edge.	2
	(b)	Let G be a simple graph with diameter at least 4. Prove that $\overline{G}$ has diameter at most 2.	2
	(c)	Prove that if G is an n-vertex connected graph having no cycles, then for every $u, v \in V(G)$, G has exactly one $u-v$ path.	2
4.	(a)	Determine the number of spanning trees of the given graph by the matrix tree computation method. 	2
	(b)	Find the minimum spanning tree of the given weighted graph by using Kruskal's algorithm. 	2
	(c)	Determine the number of spanning trees in a complete graph of 5 vertices.	2
5.	(a)	Let T be a tree with n vertices, and let k be the maximum size of an independent set in T. Determine $\alpha'(T)$ in terms of n and k.	2
	(b)	Draw the simple graphs for which the values of $\alpha(G)=1$ and $\alpha'(G)=1$.	2

	(c)	Determine whether the given graph has a 1-factor or not.  NO	2
6.	(a)	Define chromatic number of a graph and find the chromatic number of the given graph. 4 	2
	(b)	Prove or disprove: If G is a connected graph, then $\chi(G) \le 1 + a(G)$, where $a(G)$ is the average of the vertex degrees in G.	2
	(c)	Draw $C_3 \vee P_3$ and compute $\chi(C_3 \vee P_3)$. C_3 is a cycle w/ 3 vertices. P_3 is path w/ 3 vertices. The join $G \vee H$ means connecting each vertex of G to H.	
7.	(a)	Prove that if T is a tree with n vertices, then $\chi(T;k) = k(k-1)^{n-1}$.	2
	(b)	Compute the chromatic polynomial of the given graph. 	2
	(c)	Prove that $k^4 - 4k^3 + 3k^2$ is not a chromatic polynomial.	2
8.	(a)	If G is a simple planar graph with atleast 3 vertices then prove that $e(G) \le 3n(G) - 6$.	2
	(b)	Prove that every simple planar graph has a vertex of degree atmost 5.	2
	(c)	Construct a 3-regular planar graph of diameter 3 with 12 vertices.	2
9.	(a)	Show that $K_{3,3}$ is nonplanar.	2

	(b)	Prove that if G is a plane graph and every face of G has even length, then the dual graph G^* of G is Eulerian.	2
	(c)	Let G be a connected planar graph with 10 vertices. If the number of edges on each face of G is three, then determine the number of edges in G.	2
10	(a)	Draw $C_3 \square K_2$ and determine $\chi'(C_3 \square K_2)$.	2
	(b)	Determine, whether $\overline{P_5}$ is a line graph. If so, find H such that $L(H) = \overline{P_5}$.	2
	(c)	For $n > 1$, prove that $K_{n,n}$ has $(n-1)!n!/2$ Hamiltonian cycles and illustrate it for $K_{2,2}$.	2
		End of Questions	

END-SEMESTER EXAMINATION, June-2024
CALCULUS B (MTH2101)

Programme: B.Tech(All Branches) **Semester: 2nd**
Full Marks: 60 **Time: 3 Hours**

Subject/Course Learning Outcome	*Taxonomy Level	Ques. Nos.	Marks
Use the knowledge of three dimensions and vectors to describe the region, lines, planes and surfaces.	L3	1a, b, c, 2a, 2b	2,2,2, 2,2
Compute the length of the curve, curvature, tangent normal vector, tangent plane.	L3	2c, 3a	2,2
Apply the concept of function of several variables to find the limit, derivative, directional derivative, linearization and maxima minima.	L3	3b, 3c, 4a, b, c, 5a, b,	2,2,2, 2,2,2, 2
Apply the concept of double and triple integration to evaluate the integral, to find the surface area.	L3	5c, 6a, b, c, 7a, b, 7c, 8a	2,2,2, 2,2,2, 2,2
Apply the concept of line integral to evaluate it, in conservative vector field and in Greens theorem.	L4	8b, c, 9a, b,	2,2,2, 2
Apply the concept of curl, Divergence, surface integrals and volume integrals	L4	9c, 10a, b, c	2,2,2, 2

*Bloom's taxonomy levels: Remembering (L1), Understanding (L2), Application (L3), Analysis (L4), Evaluation (L5), Creation (L6)

Answer all questions. Each question carries equal mark.

1.	(a)	If A (0, 4, 3), B (0,0,0) and C (3, 0, 4) are three points defined in x, y, z co-ordinate system, then find the vector perpendicular to both vectors $\left(\overrightarrow{AB}\right)$ and $\left(\overrightarrow{BC}\right)$	2
	(b)	Compute the area of parallelogram with vertices A (-2,1), B (0,4), C (4,2) and D (2, -1).	2
	(c)	Find the position vector of the particle that has given acceleration and the specified initial velocity and position: $a(t)=t\hat{i}+e^{t}\hat{j}+e^{-t}\hat{k}$,$v(0)=\hat{k}$,$r(0)=\hat{j}+\hat{k}$	2

2. 0	(a)	Find the parametric equation for the tangent line to the curve $x=t, y=e^{-t}, z=2t-t^2$ at $(0,1,0)$.	2
	(b)	At what point on the curve $x=t^3, y=3t, z=t^4$ is the normal plane parallel to the plane $6x + 6y - 8z = 1$?	2
	(c)	If $\mathbf{a} = \langle 3,0,1\rangle$, find a vector $\mathbf{b}$ such that $\text{Comp}_{\mathbf{a}}\mathbf{b} = 2$.	2
3.	(a)	Find the curvature of $\vec{r}(t)=\langle t,t^2,t^3\rangle$ at the point(1,1, 1).	2
	(b)	Calculate: $\lim_{t\to 0}\left(e^{-3t}i+\dfrac{t^2}{\sin^2 t}j+\cos 2tk\right)$	2
	(c)	Find the domain of the vector function, $r(t) = \left\langle \sqrt{4-t^2}, e^{-3t}, \ln(t+1)\right\rangle$	2
4.	(a)	Explain if the function is differentiable and find the linearization L (x, y) of the function $f(x,y)=\sqrt{x+e^{4y}}$ at the point $(3,0)$.	2
	(b)	Use the Chain Rule to find $\partial z/\partial s$ and $\partial z/\partial t$ for $z=e^{x+2y}, x=s/t, y=t/s$.	2
	(c)	Find the directional derivative of the function $f(x,y)=e^x\sin y$ at $(0,\pi/3)$ in the direction of the vector $v=\langle -6,8\rangle$.	2
5.	(a)	Find the local maximum and minimum values and saddle point(s) of the function $f(x,y)=xy(1-x-y)$.	2
	(b)	Find out points at which the direction of fastest change of the function $f(x,y,)=x^2+y^2+-2x-4y$ is $\mathbf{i}+\mathbf{j}$.	2
	(c)	If R = [0,4] x [-1,2], Use a Riemann sum with m=2, n=3 to estimate the value of $\iint_R (1-xy^2)\,dA$. Take the sample points to be the upper left corners of the rectangle.	2
6. 0	(a)	Find the volume of the solid enclosed by the surface $z=1+e^x\sin y$ and the planes $x=\pm 1, y=0, y=\pi, and\ z=0$.	2

	(b)	Evaluate the double integral: $\iint_R (x+xy^{-2})\,dA$, where $R=\{(x,y)\mid 0\le x\le 1,-3\le y\le 3\}$	2
	(c)	Evaluate the integral by reversing the order of integration $\int_0^1\int_x^1 e^{x/y}\,dydx$	2
7.	(a)	Evaluate the iterated integral by converting to polar coordinate $\int_0^1\int_y^{\sqrt{2-y^2}}(x+y)\,dxdy$	2
	(b)	Find the surface area of the part of the plane 3x + 2y+z =6 that lies in the first octant.	2
	(c)	Evaluate the iterated integral $\int_0^{\pi/2}\int_0^y\int_0^x \cos(x+y+z)\,dz\,dx\,dy$	2
8.	(a)	Find the Jacobian of the transformation $x=uv,\ y=u/v$.	2
	(b)	Evaluate the line integral $\int_C \vec{F}\cdot dr$, if $\vec{F}(x,y,z)=(x+y)\hat{i}+(y-z)\hat{j}+z^2\hat{k}$, where $r(t)=t^3\hat{i}-t^2\hat{j}+t\hat{k}$, $0\le t\le 1$	2
	(c)	Determine whether or not $\vec{F}$ is a conservative vector field. If it is, find a function f such that $\vec{F}=\nabla f$. If $\vec{F}(x,y)=(2xy+y^{-2})\hat{i}+(x^2-2xy^{-3})\hat{j},\ y>0$.	2
9.	(a)	Use Green's Theorem to evaluate the line integral $\int_C \cos y\,dx+x^2\sin y\,dy$, C is the rectangle with vertices (0,0), (5,0), (5, 2), and (0,2).	2
	(b)	Find the curl and the divergence of the vector field $\vec{F}(x,y,z)=xye^z\hat{i}+yze^x\hat{k}$	2

	(c)	Find the equation of the tangent plane to the given parametric surface $x = u + v, y = 3u^2, z = u - v$ at the point (2,3,0).	2
10	(a)	Evaluate the surface integral $\iint_S yds$, S is the helicoid with vector equation $r(u,v)=\langle u\cos v, u\sin v, v\rangle$, $0 \le u \le 1, 0 \le v \le \pi$.	2
	(b)	Use Stokes' Theorem to evaluate $\iint_S curl\, \vec{F} \cdot dS$. $\vec{F}(x,y,z) = \tan^{-1}(x^2yz^2)i + x^2yj + x^2z^2k$. S is the cone $x = \sqrt{y^2+z^2}, 0 \le x \le 2$, oriented in the direction of the positive x-axis.	2
	(c)	Use the Divergence theorem to calculate the surface integral $\iint_S \vec{F}.ds$, i.e; calculate the flux of $\vec{\mathbf{F}}$ across **S**, if $\vec{\mathbf{F}}(x,y,z) = xye^z + xy^2z^3\,\mathbf{j} - ye^z\,\mathbf{k}$, S is the surface of the box bounded by the coordinate planes and x=1, y=2 and z=3.	2
		End of Questions	

Answer all questions. Each question carries equal mark.

1. (a) Find the electric field at a point on the axis of a uniformly charged ring of radius 'a' at a distance 'x' from its centre. 2

   (b) Two equal positive charges $q_1 = q_2 = 2\mu C$ are located at $x = 0, y = 0.3m$ and $x=0, y= -0.3m$, respectively. What are the magnitude and direction of the total electric force that q_1 and q_2 exert on a third charge $Q = 4\mu C$ located at $x = 0.4m, y = 0$ 2

   (c) An electric dipole is placed in a region of uniform electric field E, with the electric dipole moment p, pointing in the direction opposite to E. Is the dipole (i) in stable equilibrium (ii) in unstable equilibrium (iii) neither? Justify. 2

2. (a) A charged non-conducting sphere of radius R has a total positive charge q. Find the electric field at any point inside the sphere. 2

   (b) A solid non-conducting sphere with radius $0.45\ m$ carries a net charge of $0.25nC$. Find the magnitude of the electric field at a point $0.1\ m$ inside and outside the surface of the sphere. 2

   (c) A closed Gaussian surface encloses five discrete charges of $+5\mu C$, $3\mu C$, $+8\mu C$, $+1\mu C$ and $-10\mu C$. Find the electric flux through it. 2

3. (a) Derive an expression for electric field in terms of potential gradient. 2

   (b) A small particle has charge $-5\ \mu C$ and mass 2×10^{-4}kg. It moves from point 'A' where the electric potential is $V_A = +200V$, to point 'B' where the electric potential is $V_B = +800V$. The electric force is the only force acting on the particle. The particle has speed 5m/s at point 'A'. What is its speed at point 'B'? Is it moving faster or slower at 'B' than at 'A'? Explain. 2

   (c) If the electric potential at a certain point is zero, does the electric field at that point have to be zero? 2

4. (a) Find the capacitance of a parallel plate capacitor with its two plates each of area A at a distance d from each other. What change in its capacity do you expect if a dielectric is inserted between the plates? 2

   (b) The plates of a parallel-plate capacitor in vacuum are 5mm apart and $2m^2$ in area. A 10kV potential difference is applied across the capacitor. Compute (a) the capacitance; (b) the charge on each plate; and (c) the magnitude of the electric field between the plates. 2

   (c) A capacitor has vacuum in the space between the conductors. If you double the amount of charge on each conductor, what happens to the capacitance? Justify your answer. 2

5. (a) Express Ohm's Law in terms of electric field and current density. Hence derive the relation between potential difference across a conductor and the current flowing through it. 2

   (b) A radio receiver operating at 6 V draws a current of 0.1 A. How much electrical energy will it consume in 2 hours? 2

   (c) What shunt resistance is required to convert a $1\ mA$, $20\ \Omega$ galvanometer into ammeter of range 0 to $50mA$? 2

6. (a) A charged capacitor of capacitance C is discharged through a resistor of resistance R. Obtain the expression for instantaneous charge on the capacitor during discharging. 2

   (b) A 10 MΩ resistor is connected in series with a 1.0 μF capacitor. The capacitor has an initial charge of 5.0 μC and is discharged by closing the switch at t = 0. (a) At what time will the charge on the capacitor plate be equal to 0.50 μC? (b) What is the current at this time? 2

   (c) Show graphically the variation of charge q and current i with time when the charged capacitor is being discharged in RC circuit. 2

7. (a) Evaluate the force on a current carrying conductor in a magnetic field. 2

   (b) A straight horizontal copper rod carries a current of $50A$ from west to east in a region between the poles of a large electromagnet. In this region there is a horizontal magnetic field toward the northeast (that is, 45° north of east) with magnitude 1.20 T. Find the magnitude and direction of the force on a 1.00-m section of rod. 2

   (c) If you double the speed of the charged particle in a magnetic field while keeping the magnetic field, charge and mass constant, how does this affect the radius of the trajectory and time required to complete one circular orbit. 2

8. (a) State Ampere's circuital law and express its modified form with help of displacement current. 2

   (b) The electric flux through a certain area of a dielectric is $(8.76 \times 10^3\ Vm/s^4)\ t^4$. The displacement current through the area id $12.9pA$ at time $t = 26.1ms$. Calculate the dielectric constant for the dielectric. 2

   (c) Graphically, show the variation of magnetic field with distance 'r' from the axis of a cylindrical conductor carrying current, both inside and outside the conductor. 2

9. (a) Express the instantaneous current in an R-L circuit when there is growth of current. Explain it graphically. 2

(b) An oscillating voltage of fixed amplitude is applied across a circuit element. If the frequency of this voltage is increased, will the amplitude of the current through the element (i) increase (ii) decrease or (iii) remains the same if it is (i) resistor and (ii) an inductor. 2

(c) A series L-C-R circuit comprises of a L=60mH, C=0.50μF, R=300Ωare connected to an ac source of voltage V=50 volt and ω=10000 rad/s. Find (i) impedance of the circuit and (ii) expression of current. 2

10 (a) Write the key features of electromagnetic wave. 2

(b) For an electromagnetic wave propagating through free space, calculate the frequency of a wave, with a wavelength of (a) 30 Å; (b) 300 Å; (c) 3000 Å and (d) 30 m. 2

(c) Express the Maxwell's electromagnetic equations which are not changed in the presence of charges and currents. 2

End of Questions

Answer all questions. Each question carries equal mark.

1.	(a)	"Communication is the essence of life." Justify.	2
	(b)	Why is it essential to maintain a proper eye contact with the audience in oral communication?	2
	(c)	"Organizational norms and policies often act as barriers in communication." Elucidate.	2
2.	(a)	Differentiate between speaking impromptu and speaking extemporaneously.	2
	(b)	How does the voice and the words we use act as useful measures for effective speech?	2
	(c)	Discuss the stages of effective reading.	2
3.	(a)	Is it necessary to make communication audience-centered? Justify your answer.	2
	(b)	What demographic traits of the audience are to be analysed before launching a product in the market?	2
	(c)	What is situational audience analysis? Explain in detail, highlighting the relevant factors.	2
4.	(a)	What are the benefits of adopting ethical choices at workplace?	2
	(b)	Why does researching play a pivotal role at workplace? (Answer providing any 4 reasons).	2
	(c)	How do you define secondary sources in research writing and why is it used in research?	2
5.	(a)	What is goodwill? How does effective business correspondence foster goodwill?	2
	(b)	Discuss any 5 netiquettes to be followed for drafting an effective e-mail.	2
	(c)	You are a trainee engineer in ABC Pvt. Ltd. Draft an e-mail to the HR manager of your company, requesting to sanction your sick leave.	2
6.	(a)	Write the parts of a business letter in correct sequence.	2
	(b)	You are Kuntal/Khushi living at 112, Jagamohan Nagar, Bhubaneswar. The continuous leaking of drain pipes in your colony is causing diseases and health complications for the residents. Write a complaint letter to the Municipal Commissioner to take necessary actions regarding the same.	2
	(c)	Define the importance of an executive summary in a long report.	2
7.	(a)	What are Informative reports? Explain the purpose of an informative report and provide examples of topics that can be covered in such reports.	2
	(b)	Discus systematically how to write text for the web.	2
	(c)	Identify and explain the strategies to be adopted for a Credible Blog Posting.	2
8.	(a)	Explain the purpose of writing a cover letter with a CV.	2
	(b)	Discuss the advantages and disadvantages of functional CV.	2
	(c)	State the importance of career objective statement in a CV.	2
9.	(a)	"For an effective presentation, certain prerequisites must be adhered to." Identify such prerequisites and discuss their importance.	2
	(b)	Highlight the format to be adopted for an effective presentation.	2
	(c)	"Visuals can speak a ton more than a series of bullet points placed in the slides of a presentation." Justify the idea, defending with relevant examples.	2
10.	(a)	Define the characteristic features of empathetic people for a successful interpersonal relationship.	2
	(b)	"Possession of Interpersonal Skills, is a must for Engineers." Defend the statement.	2
	(c)	"Emotional Intelligence is about analysing and understanding human relationship." Explain.	2
		End of Questions	