Code No: **R231105** **R23** **SET-1**

I B. Tech I Semester Regular Examinations, January-2024
LINEAR ALGEBRA AND CALCULUS

(Common to all Branches)

Time: 3 hours Max. Marks: 70

*Note: 1. Question paper consists of two parts (**Part-A** and **Part-B**)*
*2. All the questions in **Part-A** is Compulsory*
*3. Answer **ONE** Question from **Each Unit** in **Part-B***

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PART –A (20 Marks)

1. a) Define linear system of equations. [2M]
   b) What is the normal form? [2M]
   c) Find the matrix corresponding to quadratic form $x^2 + 4xy + 2y^2$. [2M]
   d) Find the sum of the Eigen values of matrix $\begin{bmatrix}1 & 2\\ 2 & 4\end{bmatrix}$ [2M]
   e) State Cauchy's mean value theorem. [2M]
   f) Write the geometrical interpretation for Lagrange's mean value theorem. [2M]
   g) Find $\frac{\partial f}{\partial x}, \frac{\partial f}{\partial y}$ for $f(x,y) = xy + x^2 + 2y$ [2M]
   h) Find $\frac{\partial u}{\partial x}$ if $u = f(x+y, x-y)$ [2M]
   i) Let $f(x, y)$ be a continuous function in R^2 where $R = \{(x, y)/\ a \le x \le b;\ c \le y \le d\}$ then $\iint_R f(x,y)\ dx\ dy$ =? [2M]
   j) Evaluate $\int_0^1 \int_0^2 xy\ dx\ dy$ [2M]

PART – B (50 MARKS)

UNIT-I

2. a) Find the rank of the matrix using echelon form $\begin{bmatrix}1 & 2 & 3 & -2\\ 2 & -2 & 1 & 3\\ 3 & 0 & 4 & 1\end{bmatrix}$ [5M]
   b) Solve the system of equations using Gauss elimination method [5M]
   $10x + y + z = 12,\ 2x + 10y + z = 13,\ x + y + 5z = 7.$

(OR)

3. a) Find the inverse using Gauss-Jordan method $\begin{bmatrix}2 & -1 & 3\\ 1 & 1 & 1\\ 1 & -1 & 1\end{bmatrix}$ [5M]
   b) Find the values of 'a' and 'b' for which the system of equations [5M]
   $x + y + z = 3, x + 2y + 2z = 6, x + ay + 3z = b$ has a unique solution.

UNIT-II

4. a) Determine the eigen values of $adjA$ where $A = \begin{bmatrix}-3 & -7 & -5\\ 2 & 4 & 3\\ 1 & 2 & 2\end{bmatrix}$ [5M]
   b) Verify Cayley-Hamilton theorem for $A = \begin{bmatrix}2 & 1 & 1\\ 0 & 1 & 0\\ 1 & 1 & 2\end{bmatrix}$ [5M]
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(OR)

5. Diagonalize the matrix $A = \begin{bmatrix} 3 & -1 & 1 \\ -1 & 5 & -1 \\ 1 & -1 & 3 \end{bmatrix}$ and find A^4 using model matrix 'P' [10M]

UNIT-III

6. a) Verify Rolle's mean value theorem $f(x) = \frac{sinx}{e^x}$ in $[0, \pi]$ [5M]

   b) Write the Taylor's series expansion for $f(x) = \log(1 + x)$ about $x = 0$ [5M]

(OR)

7. Prove that $\frac{\pi}{6} + \frac{1}{5\sqrt{3}} < sin^{-1}\left(\frac{3}{5}\right) < \frac{\pi}{6} + \frac{1}{8}$ [10M]

UNIT-IV

8. a) If $x = r\,cos\,\theta\,, y = r\,sin\,\theta$ then prove that $\frac{\partial^2\theta}{\partial x^2} + \frac{\partial^2\theta}{\partial y^2} = 0$ [5M]

   b) Determine whether the following functions are functionally dependent if so find the relation between $if\ u = x\sqrt{1-y^2} + y\sqrt{1-x^2},\ v = sin^{-1}(x) + sin^{-1}(y)$. [5M]

(OR)

9. a) Find $x\frac{\partial u}{\partial x} + y\frac{\partial u}{\partial y}$ if $u = \log\left(\frac{x^2+y^2}{xy}\right)$ [5M]

   b) Find extreme values$f(x, y) = 1 - x^2 - y^2$ [5M]

UNIT-V

10. By change of Integration Evaluate [10M]
$\int_o^1 \int_{x^2}^x xy\ dx\ dy$

(OR)

11. Find the volume of the sphere $x^2 + y^2 + z^2 = a^2$ using triple integration. [10M]

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Code No: **R231105** **R23** **SET-2**

I B. Tech I Semester Regular Examinations, January-2024
LINEAR ALGEBRA AND CALCULUS

(Common to all Branches)

Time: 3 hours Max. Marks: 70

*Note: 1. Question paper consists of two parts (**Part-A** and **Part-B**)*
*2. All the questions in **Part-A** is Compulsory*
*3. Answer **ONE** Question from **Each Unit** in **Part-B***

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PART –A (20 Marks)

1. a) Define the rank of the matrix [2M]
   b) If the matrix of order $(m \times n)$, then that would be the rank of the matrix [2M]
   c) Find the product of the Eigen values of $\begin{bmatrix} 2 & 2 \\ 2 & 6 \end{bmatrix}$ [2M]
   d) Find the Eigen vector corresponding to $\lambda = 5$ for the matrix $\begin{bmatrix} 3 & 1 & 4 \\ 0 & 2 & 4 \\ 0 & 0 & 5 \end{bmatrix}$ [2M]
   e) Write the geometrical interpretation for Rolle's mean value theorem. [2M]
   f) Find the value of 'c' using Lagrange's mean value theorem for $f(x) = x^2 \; in \; [1,5]$ [2M]
   g) Find $\frac{\partial f}{\partial x}, \frac{\partial f}{\partial y}$ for $f(x,y) = e^{xy} + 2x^2$ [2M]
   h) Find $\frac{\partial u}{\partial y}$ if $u = f(x+y, x-y)$ [2M]
   i) If $f(x, y)$ be a continuous function defined aver region R, where $R = \{(x, y)/ \; a \leq x \leq b$ and $y_1 \leq y \leq y_2\}$ then $\iint_R f(x,y) \; dx \; dy = ?$ [2M]
   j) Evaluate $\int_0^1 \int_0^1 e^{xy} \; dx \; dy$ [2M]

PART – B (50 MARKS)

UNIT-I

2. a) Solve the system of equations using Gauss elimination method [5M]
   $3x + y + 2z = 3, 2x - 3y - z = -3, x + 2y + z = 4$
   b) Find the inverse using Gauss-Jordan method $\begin{bmatrix} 1 & 1 & 2 \\ 1 & 2 & 3 \\ 2 & 3 & 1 \end{bmatrix}$ [5M]

(OR)

3 a) Find the rank of the matrix using Normal form $\begin{bmatrix} 1 & 3 & 6 & -1 \\ 1 & 4 & 5 & 1 \\ 1 & 5 & 4 & 3 \end{bmatrix}$ [5M]
   b) Test the consistency, if so, solve the system of equations [5M]
   $x + y + z = 6, x + 2y + 3z = 10, x + 2y + 3z = 5$

UNIT-II

4. a) Determine the Eigen values of A^{-1} where $A = \begin{bmatrix} 1 & 0 & -1 \\ 1 & 2 & 1 \\ 2 & 2 & 3 \end{bmatrix}$ [5M]
   b) Verify Cayley-Hamilton theorem for $A = \begin{bmatrix} 2 & 4 & 7 \\ 0 & 1 & 8 \\ 0 & 0 & 3 \end{bmatrix}$ [5M]

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(OR)

5. Diagonalize the matrix $A = \begin{bmatrix} 2 & 2 & -7 \\ 2 & 1 & 2 \\ 0 & 1 & -3 \end{bmatrix}$ and find A^4 using model matrix 'P' [10M]

UNIT-III

6. a) Write the Taylor's series expansion for $f(x) = \log(1-x)$about $x = 0$ [5M]

   b) Verify Rolle's mean value theorem $f(x) = |x|$ in $[-1,1]$ [5M]

(OR)

7. If $a < b$ prove that $\frac{b-a}{1+b^2} < tan^{-1}b - tan^{-1}a < \frac{b-a}{1+a^2}$ [10M]

UNIT-IV

8. a) Expand f(x,y) = xy^2 +cos(xy) in powers of $(x-1)$ and $(y-\frac{\pi}{2})$ using Taylor's series. [5M]

   b) If $u = \frac{y}{z} + \frac{z}{x}$ then find $x\frac{\partial u}{\partial x} + y\frac{\partial u}{\partial y} + z\frac{\partial u}{\partial z}$ [5M]

(OR)

9. a) Find $x\frac{\partial u}{\partial x} + y\frac{\partial u}{\partial y}$ if $u = sin^{-1}\left(\frac{x}{y}\right) + \tan^{-1}\left(\frac{y}{x}\right)$ [5M]

   b) Show that $u = \frac{x}{y-z}, v = \frac{y}{z-x}, w = \frac{z}{x-y}$ are functionally dependent. [5M]

UNIT-V

10. Evaluate by change of order of Integration [10M]
$\int_0^{2a} \int_{y^2/4a}^{3a-y} dx\ dy$

(OR)

11. Evaluate $\iiint_R z(x^2 + y^2)\ dx\ dy\ dz$ where R is the Region bounded by the cylinder. $x^2 + y^2 = 1$ and the planes $z = 2$ and $z = 3$ by changing it to cylindrical coordinates. [10M]

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Code No: **R231105** **R23** **SET-3**

I B. Tech I Semester Regular Examinations, January-2024
LINEAR ALGEBRA AND CALCULUS

(Common to all Branches)

Time: 3 hours Max. Marks: 70

*Note: 1. Question paper consists of two parts (**Part-A** and **Part-B**)*
*2. All the questions in **Part-A** is Compulsory*
*3. Answer **ONE** Question from **Each Unit** in **Part-B***

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PART –A (20 Marks)

1. a) Find the rank of the singular matrix of order 4×4 [2M]

b) What type of the solutions exists for $2x + 3y = 5,\ 4x + 6y = 10$ system? [2M]

c) If 5 is an Eigen value of A the find the Eigen value of $4A + 5I$ [2M]

d) Write the quadratic form associated with $\begin{bmatrix} 4 & 1 & 2 \\ 1 & 2 & 3 \\ 2 & 3 & 1 \end{bmatrix}$ [2M]

e) Find the value of 'c' using Rolle's 's mean value theorem for $f(x) = x^2\ in\ [-1,1]$ [2M]

f) State Lagrange's mean value theorem. [2M]

g) Find $\frac{\partial f}{\partial x}, \frac{\partial f}{\partial y}$ for $f(x,y) = log\sqrt{x^2 + y^2}$ [2M]

h) Find $\frac{\partial u}{\partial x}$ if $u = f(x + 2y, x - 2y)$ [2M]

i) If $f(x, y)$ be a continuous defined over a Region R, were [2M]
$R=\{(x, y)/\ x_1 \le x \le x_2$ and $c \le y \le d\}$ then $\iint_R f(x,y)\ dx\ dy$ = ?

j) Evaluate $\int_0^2 \int_0^1 xy\ dx\ dy$ [2M]

PART – B (50 MARKS)

UNIT-I

2. a) Find the rank of the matrix using echelon form $\begin{bmatrix} 2 & 1 & -3 & -6 \\ 2 & -3 & 1 & 2 \\ 1 & 1 & 1 & 2 \end{bmatrix}$. [5M]

b) Solve the system of equations [5M]
$x + 2y + 3z = 0, 3x + 4y + 4z = 0,\ 7x + 10y + 12z = 0.$

(OR)

3 a) Test the consistency, if so, solve the system of equations [5M]
$5x + 3y + 7z = 4, 3x + 26y + 2z = 9, 7x + 2y + 10z = 5.$

b) Solve the system of equations using Gauss Seidel iteration method [5M]
$10x + y + z = 12, x + 10y - z = 10, x - 2y + 10z = 9$

UNIT-II

4. Reduce the quadratic form $2x^2 + 2y^2 + 2z^2 - 2yz - 2zx - 2xy$ to the canonical form byorthogonal reduction. Hence find nature, rank, index, and signature. [10M]

(OR)

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5. a) Find the Eigen values A^2 if $A = \begin{bmatrix} -1 & 0 & 2 \\ -1 & 2 & 0 \\ -1 & 0 & 2 \end{bmatrix}$ [5M]

   b) Verify Cayley-Hamilton theorem for $A = \begin{bmatrix} 1 & 2 & 3 \\ 2 & 4 & 5 \\ 3 & 5 & 6 \end{bmatrix}$ [5M]

UNIT-III

6. Show that for any $0 < x < 1$,$x < sin^{-1}x < \frac{x}{\sqrt{1-x^2}}$ [10M]

(OR)

7. a) Verify Cauchy's mean value theorem $f(x) = sinx\ and\ g(x) = cosx$ in $\left[0, \frac{\pi}{2}\right]$ [5M]

   b) Write the Taylor's series expansion for $f(x) = cosx$ about $x = \frac{\pi}{4}$ [5M]

UNIT-IV

8. a) Find $x\frac{\partial u}{\partial x} + y\frac{\partial u}{\partial y}$ if $u = \frac{x^2+y^2}{\sqrt{x}+\sqrt{y}}$ [5M]

   b) Expand $f(x,y) = tan^{-1}\left(\frac{y}{x}\right)$ in powers of $(x-1)\ and\ (y-1)$ using Taylor's series. [5M]

(OR)

9. a) Find extreme values of $f(x,y) = x^2 - xy + y^2 + 3x - 2y + 1$ [5M]

   b) Prove that $\frac{\partial^2 u}{\partial x^2} + \frac{\partial^2 u}{\partial y^2} + \frac{\partial^2 u}{\partial z^2} = 0$ if $u = z\,tan^{-1}\left(\frac{x}{y}\right)$ [5M]

UNIT-V

10. By change into polar co-ordinates Evacuate $\int_0^a \int_0^{\sqrt{a^2-x^2}} (x^2y + y^2)\,dx\,dy$ [10M]

(OR)

11. Evaluate $\iiint_R (x^2 + y^2 + z^2)\,dx\,dy\,dz$, where R is the Region bounded by $x = 0$, $y = 0$, $z = 0$ and the sphere $x^2 + y^2 + z^2 = 1$ in the first octant. [10M]

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Code No: **R231105** **R23** **SET-4**

I B. Tech I Semester Regular Examinations, January-2024
LINEAR ALGEBRA AND CALCULUS

(Common to all Branches)

Time: 3 hours Max. Marks: 70

*Note: 1. Question paper consists of two parts (**Part-A** and **Part-B**)*
*2. All the questions in **Part-A** is Compulsory*
*3. Answer **ONE** Question from **Each Unit** in **Part-B***

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PART –A (20 Marks)

1. a) The rank of 2×2 matrix with all elements are 3. [2M]

   b) Write the condition for the homogeneous system of equations possess trivial solutions. [2M]

   c) Find the nature of the quadratic form $\begin{bmatrix} 1 & 0 & 0 \\ 0 & 4 & 0 \\ 0 & 0 & 3 \end{bmatrix}$ [2M]

   d) Find the Eigen values of A^T If 1 and 2 are the Eigen values of A. [2M]

   e) Find the value of 'c' using Lagrange's mean value theorem for $f(x) = 2x \; in \; [0,1]$ [2M]

   f) Write the Maclaurin's series. [2M]

   g) Find $\frac{\partial f}{\partial x}, \frac{\partial f}{\partial y}$ for $f(x,y) = e^x cos2y$ [2M]

   h) Find $\frac{\partial u}{\partial y}$ if $u = f(2x+y, x-2y)$ [2M]

   i) If the region 'R' is divided into two sub regions, R_1, R_2 then $\iint_R f(x,y) \; dx \; dy = ?$ [2M]

   j) Evaluate $\int_0^1 \int_0^1 dx \; dy$ [2M]

PART – B (50 MARKS)

UNIT-I

2. a) Solve the system of equations [5M]
   $x + 3y - 2z = 0, \quad 2x - y + 4z = 0, \quad x - 11y + 14z = 0$

   b) Solve the system of equations using Gauss Jacobi iteration method [5M]
   $10x + y + z = 12, \; x + 10y - z = 10, \; x - 2y + 10z = 9$

(OR)

3 a) Find the rank of the matrix using Normal form $\begin{bmatrix} 3 & 2 & -1 & 5 \\ 5 & 1 & 4 & 2 \\ 1 & -4 & 11 & -19 \end{bmatrix}$ [5M]

   b) Test the consistency, if so, solve the system of equations [5M]
   $x + y + z + t = 4, x - z + 2t = 2, y + z - 3t = -1, x + 2y - z + t = 3.$

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Code No: **R231105** **R23** **SET-4**

UNIT-II

4. Reduce the quadratic form $3x^2 + 5y^2 + 3z^2 - 2yz + 2zx - 2xy$ to the canonical form by orthogonal reduction. Hence find nature, rank, index, and signature. [10M]

(OR)

5. a) Find the Eigen values A^3if $A = \begin{bmatrix} 3 & -2 & 2 \\ 6 & -4 & 6 \\ 2 & -1 & 3 \end{bmatrix}$ [5M]

b) Verify Cayley-Hamilton theorem for $A = \begin{bmatrix} 1 & 0 & 3 \\ 2 & 1 & -1 \\ 2 & -1 & 1 \end{bmatrix}$ [5M]

UNIT-III

6. Show that for any $x > 0$,$1 + x < e^x < 1 + xe^x$ [10M]

(OR)

7. a) Verify Cauchy's mean value theorem $f(x) = x^2$ *and* $g(x) = x^3$ in [1,2] [5M]

b) Write the Taylor's series expansion for $f(x) = sinx$ about $x = \frac{\pi}{4}$ [5M]

UNIT-IV

8. a) Prove that $\frac{\partial^2 u}{\partial x^2} + \frac{\partial^2 u}{\partial y^2} + \frac{\partial^2 u}{\partial z^2} = 0$ if $u = (x^2 + y^2 + z^2)^{-\frac{1}{2}}$ [5M]

b) Find the maximum and minimum distance of the point $(3,4,12)$ from the sphere $x^2 + y^2 + z^2 = 1$ using Lagrange's multiplier method [5M]

(OR)

9. a) Find $x\frac{\partial u}{\partial x} + y\frac{\partial u}{\partial y}$ if $u = log\left(\frac{x^2+y^2}{xy}\right)$ [5M]

b) Find extreme values of the following functions$f(x, y) = xy(a - x - y)$ [5M]

UNIT-V

10. Evaluate $\iint_R (\sqrt{xy} - y^2)\, dx\, dy$ where *R* is a triangle with vertices (0,0), (1, 0), (1, 1) [10M]

(OR)

11. Find the volume under the parabolic $x^2 + y^2 + z = 16$ over rectangle $x = \pm a$, $y = \pm b$ [10M]

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Code No: **R231103** **R23** **SET - 1**

I B. Tech I Semester Regular Examinations, January-2024
CHEMISTRY
(Common to EEE, CSE)

Time: 3 hours Max. Marks: 70

*Note: 1. Question paper consists of two parts (**Part-A** and **Part-B**)*
*2. All the questions in **Part-A** is Compulsory*
*3. Answer **ONE** Question from **Each Unit** in **Part-B***

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PART –A (20 Marks)

1.	a)	What is the Significance of Ψ and Ψ^2?	[2M]
	b)	What are the Bonding and Anti-Bonding molecular orbitals?	[2M]
	c)	Write any two applications of Semiconductors.	[2M]
	d)	How Super Conductors are classified?	[2M]
	e)	What is electrochemical cell? Give an example.	[2M]
	f)	Distinguish between Primary and Secondary batteries.	[2M]
	g)	What is functionality of monomers?	[2M]
	h)	Mention two important applications of Conducting Polymers.	[2M]
	i)	What is Electromagnetic spectrum?	[2M]
	j)	Define the role of monochromator.	[2M]

PART – B (50 MARKS)

UNIT-I

2.	a)	Write Schrodinger wave equation and explain its significance in Quantum mechanics	[5M]
	b)	Draw the molecular orbital diagram of O_2. Explain the magnetic nature and bond order.	[5M]

(OR)

3	a)	Discuss particle in one dimensional box with suitable example	[5M]
	b)	Draw the π-molecular orbitals of butadiene.	[5M]

UNIT-II

4.	a)	Explain basic principle of Semiconducting materials.	[5M]
	b)	Write an account on Carbon Nano tubes?	[5M]

(OR)

5.	a)	What are Super capacitors? How are they classified?	[5M]
	b)	Discuss the advancement of nanotechnology in nano medicine.	[5M]

UNIT-III

6.	a)	Derive Nernst equation. What is Calomel electrode?	[5M]
	b)	Describe the construction and working of Hydrogen-Oxygen fuel cell.	[5M]

(OR)

7.	a)	What are Secondary cells? Describe the construction of lithium ion batteries.	[5M]
	b)	Discuss principle involved in Conductometric titrations.	[5M]

UNIT-IV

8.	a)	Distinguish between addition and condensation polymerization process.	[5M]
	b)	Write about mechanism of cationic addition polymerization.	[5M]

(OR)

9.	a)	Describe the preparation, properties and applications of Bakelite.	[5M]
	b)	Explain about Biodegradable polymers with suitable examples.	[5M]

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UNIT-V

10. a) State Beer-Lambert's law. Explain how this law can be used to determine the concentration of coloured solutions. [5M]

    b) Explain about High Pressure Liquid Chromatography. [5M]

(OR)

11. a) Write the basic principle involved in IR Spectroscopy. [4M]

    b) Write about fundamental modes of vibration in IR spectroscopy. [6M]

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Code No: **R231103** **R23** **SET - 2**

I B. Tech I Semester Regular Examinations, January-2024
CHEMISTRY

(Common to EEE, CSE)

Time: 3 hours Max. Marks: 70

*Note: 1. Question paper consists of two parts (**Part-A** and **Part-B**)*
*2. All the questions in **Part-A** is Compulsory*
*3. Answer **ONE** Question from each Unit in **Part-B***

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PART –A (20 Marks)

1.	a)	Define the linear combination of atomic orbitals.	[2M]
	b)	Define non-bonding orbital.	[2M]
	c)	What is Semi-Conductor? Give suitable example.	[2M]
	d)	What are nanoparticles? Give two examples?	[2M]
	e)	Define electrode potential.	[2M]
	f)	What is significance of electrochemical series?	[2M]
	g)	What is addition polymerization? Give suitable example.	[2M]
	h)	Write two important applications of Biodegradable polymers?	[2M]
	i)	Write combined form of Lamberts-Beers law.	[2M]
	j)	What is reference electrode? Give one example.	[2M]

PART – B (50 MARKS)

UNIT-I

2.	a)	Discuss about significance of Ψ and Ψ^2.	[5M]
	b)	Draw the π-molecular orbitals of benzene.	[5M]

(OR)

3	a)	Explain bonding in homo and heteronuclear diatomic molecules using MO Theory.	[5M]
	b)	Draw the molecular orbital diagram of CO. Explain the magnetic nature and bond order.	[5M]

UNIT-II

4.	a)	Mention few important applications of Super conductors.	[5M]
	b)	What are Nano particles? Write applications of Fullerene.	[5M]

(OR)

5.	a)	Explain basic principle of Super capacitor materials.	[5M]
	b)	Give an account of Graphine nanoparticles.	[5M]

UNIT-III

6.	a)	Describe the working principle and applications of Lithium-ion batteries.	[5M]
	b)	Explain the advantages of fuel cells over electrochemical cells.	[5M]

(OR)

7.	a)	Write the Nernst equation for electrode potential. Discuss briefly Potentiometric sensors.	[6M]
	b)	What are the limitations of Conductometric titrations?	[4M]
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Code No: **R231103**

R23

SET - 2

UNIT-IV

8. a) Distinguish between thermoplastics and thermosetting plastics. [5M]

   b) Write about Preparation, properties and applications of i) Teflon and ii) Nylon-6,6. [5M]

(OR)

9. a) What are conducting polymers? How are they classified? Write important engineering applications. [5M]

   b) Explain coordination polymerization process with suitable examples. [5M]

UNIT-V

10. a) Explain Electronic transition occur in UV-Visible spectroscopy. [4M]

    b) Write about important applications of IR spectroscopy. [6M]

(OR)

11. a) Explain the principle and instrumentation of UV-Visible spectroscopy with neat diagram. [5M]

    b) Discuss selection rules for IR spectroscopy. [5M]

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Code No: **R231103** **R23** **SET - 3**

I B. Tech I Semester Regular Examinations, January-2024
CHEMISTRY
(Common to EEE, CSE)

Time: 3 hours Max. Marks: 70

*Note: 1. Question paper consists of two parts (**Part-A** and **Part-B**)*
*2. All the questions in **Part-A** is Compulsory*
*3. Answer **ONE** Question from each Unit in **Part-B***

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PART –A (20 Marks)

1.	a)	What are the molecular orbitals?	[2M]
	b)	Define the bond order.	[2M]
	c)	What type of magnetism is developed in a superconductor when its temperature is lowered below its critical temperature?	[2M]
	d)	Write a note on super capacitor.	[2M]
	e)	What are redox titrations? Give one example.	[2M]
	f)	What is a fuel cell? Give an example.	[2M]
	g)	What is monomer? Give any two examples.	[2M]
	h)	What are the applications of Bakelite?	[2M]
	i)	What is chromatogram?	[2M]
	j)	Write two deviations of Lamberts-Beers law.	[2M]

PART – B (50 MARKS)

UNIT-I

2.	a)	Explain about Liner combination of Atomic Orbitals.	[5M]
	b)	Discuss about Schrodinger wave equation.	[5M]

(OR)

3	a)	Discuss Salient features of Molecular Orbital Theory.	[5M]
	b)	Draw the energy level diagram of Oxygen molecule and calculate the bond order.	[5M]

UNIT-II

4.	a)	What are the important engineering applications of semi conducting materials?	[5M]
	b)	Write about classifications of Nanoparticles.	[5M]

(OR)

5.	a)	Explain the basic concepts and applications of Super conductors with examples.	[5M]
	b)	Write properties and applications of carbon Nano tubes.	[5M]

UNIT-III

6.	a)	What is meant by electrochemical sensors? Explain Amperometric sensors.	[5M]
	b)	What is primary cell? Explain construction and applications of Zinc-Air battery.	[5M]

(OR)

7.	a)	Discuss about Acid- Base titrations using conducto-meter.	[5M]
	b)	Explain PEMFC fuel cell with neat sketch.	[5M]

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UNIT-IV

8. a) Write the preparation, properties and applications of Buna-S and Buna-N rubbers. [5M]

   b) Write Preparation, properties and applications of PVC. [5M]

(OR)

9. a) Distinguish between chain growth and step growth polymerization process with suitable examples. [5M]

   b) Explain preparation, properties and applications of PGA and PLA. [5M]

UNIT-V

10. a) Draw the block diagram of Infrared Spectrometer and explain the functions of various components. [6M]

    b) Write about basic principle involved in Chromatography. [4M]

(OR)

11. a) Explain absorption shifts in UV-Visible spectroscopy. [4M]

    b) Discuss important applications of UV-Visible Spectroscopy. [6M]

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Code No: **R231103** **R23** **SET - 4**

I B. Tech I Semester Regular Examinations, January-2024
CHEMISTRY
(Common to EEE, CSE)

Time: 3 hours Max. Marks: 70

*Note: 1. Question paper consists of two parts (**Part-A** and **Part-B**)*
*2. All the questions in **Part-A** is Compulsory*
*3. Answer **ONE** Question from each Unit in **Part-B***

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PART –A (20 Marks)

1.	a)	Define the terms Wavelength, Frequency and Velocity.	[2M]
	b)	Write wave and particle dual nature of an electron.	[2M]
	c)	What is Super Capacitor? Give suitable example.	[2M]
	d)	How does Conductivity of a Super Conductor vary with temperature?	[2M]
	e)	What is primary battery? Give an example.	[2M]
	f)	What is meant by standard electrode potential? How can it be measured?	[2M]
	g)	What are conducting polymers?	[2M]
	h)	Write the preparation of Nylon - 6,6.	[2M]
	i)	Define the term Retention time.	[2M]
	j)	How can the fingerprint region be used to identify a compound?	[2M]

PART – B (50 MARKS)

UNIT-I

2.	a)	Discuss about combinations of Atomic Orbitals.	[5M]
	b)	Write Schrodinger Wave equation in cartesian coordinate and explain the terms.	[5M]

(OR)

3	a)	What are the differences between bonding and anti-bonding molecular orbitals?	[5M]
	b)	Discuss MO energy level diagram of O_2 and CO.	[5M]

UNIT-II

4.	a)	Explain doping in semi-conductors.	[5M]
	b)	What is the effect of nanotechnology on food science?	[5M]

(OR)

5.	a)	Distinguish between superconductor and perfect conductor and explain.	[5M]
	b)	Discuss the properties and important applications of nanoparticles.	[5M]

UNIT-III

6.	a)	Explain about potentiometric titrations.	[5M]
	b)	What is meant by electrochemical sensors? Explain Glucose potentiometric sensors.	[5M]

(OR)

7.	a)	What is meant by conductivity cell? Explain acid base titrations with the help of Conducto-meter.	[5M]
	b)	With neat sketch explain about Polymer Electrolyte Membrane Fuel cells.	[5M]

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Code No: **R231103** **R23** **SET - 4**

UNIT-IV

8. a) Write a note on [5M]
i) Teflon ii) PVC iii) PLA

b) How polyaniline act as conducting polymer? Explain its mechanism of conduction. [5M]

(OR)

9. a) Define polymerization process. Explain mechanism of free radicle addition polymerization. [5M]

b) Write about mechanism of conduction and applications of polyacetylene and polyaniline. [5M]

UNIT-V

10. a) Discuss briefly components of an HPLC instrument. [5M]

b) Write a note on Instrumentation and various spectroscopies used for instrumental methods. [5M]

(OR)

11. a) Explain basic principle of UV-Visible spectroscopy. [5M]

b) Discuss important biological applications of IR spectroscopy. [5M]

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Code No: **R231107** **R23** **SET - 1**

I B. Tech I Semester Regular Examinations, January- 2024
INTRODUCTION TO PROGRAMMING

(Common to All Branches)

Time: 3 hours Max. Marks: 70

*Note: 1. Question paper consists of two parts (**Part-A** and **Part-B**)*
*2. All the questions in **Part-A** is Compulsory*
*3. Answer **ONE** Question from **Each Unit** in **Part-B***

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PART –A (20 Marks)

1.	a)	What is the difference between compiler and interpreter?	[2M]
	b)	What are the essential steps in the development an algorithm?	[2M]
	c)	Give the differences between while and do-while statements.	[2M]
	d)	Define scope and life time of a variable.	[2M]
	e)	How does the C language handle the values in an array internally?	[2M]
	f)	What is an array variable? How it is different from ordinary variable?	[2M]
	g)	Why addition of two pointers is impossible?	[2M]
	h)	What is dangling pointer?	[2M]
	i)	List the Dynamic memory management functions in C programming.	[2M]
	j)	What are the advantages with bit fields?	[2M]

PART – B (50 MARKS)

UNIT-I

2.	a)	Develop a flowchart for calculating area of an equilateral triangle. Area of equilateral triangle is computed by formula A= $(\sqrt{3}/4)\ a^2$, where 'a' is length of side of triangle.	[5M]
	b)	Explain different data types supported by C language with their memory requirements.	[5M]

(OR)

3	a)	Develop an algorithm to print the Fibonacci series.	[5M]
	b)	List out the various category of operators available in C? Give examples.	[5M]

UNIT-II

4.	a)	Differentiate between while and for statement with an example.	[5M]
	b)	Write a C program to calculate m^n value using while and do while loop.	[5M]

(OR)

5.	a)	Differentiate between break and continue statements.	[5M]
	b)	Develop a program to check whether the given number is Armstrong number or not.	[5M]

UNIT-III

6.	a)	Explain how arrays are passed as function arguments with an example.	[5M]
	b)	Define string. Explain about string operations with examples.	[5M]

(OR)

7.	a)	Develop a program to find the length of the string without using predefined functions.	[5M]
	b)	Develop a program to read and print the element in the given array.	[5M]

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UNIT-IV

8. a) Explain Pointer Arithmetic with suitable example. [5M]

   b) Explain about declaration, initialization and accessing of structures. And also discuss about complex structures. [5M]

(OR)

9. a) Write a C program to sort an array using pointers. [5M]

   b) Explain the concepts used in the given program and write the output. [5M]

```
main() {
int m[2]={100,200};
int a,b,c,*p=m; a=*p;
      b=*(p+1); c=(*p+1);
printf("%d %d %d", a,b,c);
}
```

UNIT-V

10. a) Write a C program to copy the contents of a text file to another file. Pass the filename using command line arguments. [5M]

    b) Differentiate the call by value and call by reference mechanism with examples. [5M]

(OR)

11. a) Develop a C program to find sum of 'n' Elements entered by user. To perform this program, allocate memory dynamically Using malloc() function. [5M]

    b) How do you define the scope of a variable? Illustrate with a Program. [5M]

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Code No: **R231107** **R23** **SET - 2**

I B. Tech I Semester Regular Examinations, January-2024
INTRODUCTION TO PROGRAMMING

(Common to All Branches)

Time: 3 hours Max. Marks: 70

*Note: 1. Question paper consists of two parts (**Part-A** and **Part-B**)*
*2. All the questions in **Part-A** is Compulsory*
*3. Answer **ONE** Question from **Each Unit** in **Part-B***

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PART –A (20 Marks)

1.	a)	Define flowchart. Explain with an example.	[2M]
	b)	Write the general structure of C.	[2M]
	c)	List all conditional control statements used in C.	[2M]
	d)	Write syntax of if, if-else and nested if-else statements in C program.	[2M]
	e)	What is array? Explain the declaration and initialization of one dimensional array.	[2M]
	f)	Define string. How string is declared and initialized?	[2M]
	g)	What is function? List the type of functions available in C Language.	[2M]
	h)	Define a recursion give one example function.	[2M]
	i)	What is structure? Explain the C syntax of structure declaration.	[2M]
	j)	What is pointer? Explain how the pointer variable declared and initialized?	[2M]

PART – B (50 MARKS)

UNIT-I

2.	a)	Explain the features following: (i) Machine language (ii) Assembly level language (iii) High level language (iv) Basic Computer Program	[5M]
	b)	Write algorithm and draw a flow chart for reversing a given number.	[5M]

(OR)

3	a)	Write about basic input output operations and determine the value of the following 'C' expressions.
		int x = 5,y,z;
		y = x + +;
		z = + + x;
		print f("%d %d ", x, y, z);
			[5M]

	b)	Write a short notes on the following Problem solving strategies i) Top down Approach ii) Bottom Up Approach.	[5M]

UNIT-II

4.	a)	Develop a program to check whether the given number is prime number or not.	[5M]
	b)	Differentiate between counter control and conditional control statements in C.	[5M]

(OR)

5.	a)	Develop a program that asks user an arithmetic operator ('+', '-', '*' or '/') and two operands and perform the corresponding calculation on the operands. Use a switch statement.	[5M]
	b)	How does a switch statement works? List the difference between switch and if else ladder statement.	[5M]

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UNIT-III

6. a) Develop program to find the average of smallest and largest numbers in a given array. [5M]
   b) What is string palindrome? Develop a program to check whether the given string is palindrome or not. [5M]

(OR)

7. a) Develop a program to search the key element in the given list. [5M]
   b) Develop a program to implement string operations by using string handling functions. [5M]

UNIT-IV

8. a) Develop a C program to swap two numbers using pointers. [5M]
   b) What is a pointer variable? How is a pointer variable different from an ordinary Variable? [5M]

(OR)

9. a) How to pass pointer variables as function arguments? Explain with examples. [5M]
   b) Develop a C program to declare a structure with the following elements and for accessing them. 1. Name. 2. Age. 3. University. [5M]

UNIT-V

10. a) Define dynamic memory. Describe the functions to allocate dynamic memory. [5M]
    b) What is a File? Explain fopen() and fclose() functions with suitable examples. [5M]

(OR)

11. a) Develop a program to calculate the factorial of a given number using recursion. [5M]
    b) Write a note on File and briefly explain various operations on files with examples. [5M]

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Code No: **R231107** **R23** **SET - 3**

I B. Tech I Semester Regular Examinations, January- 2024
INTRODUCTION TO PROGRAMMING

(Common to All Branches)

Time: 3 hours Max. Marks: 70

*Note: 1. Question paper consists of two parts (**Part-A** and **Part-B**)*
*2. All the questions in **Part-A** is Compulsory*
*3. Answer **ONE** Question from **Each Unit** in **Part-B***

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PART –A (20 Marks)

1.	a)	What is the variable? Illustrate with an example.	[2M]
	b)	What are the basic steps involved in writing a computer program?	[2M]
	c)	What are the types of looping statements available in C.	[2M]
	d)	Give the differences between entry controlled and exit controlled loops.	[2M]
	e)	Explain about Actual and Formal parameters.	[2M]
	f)	Why is it necessary to give the size of an array in an array declaration?	[2M]
	g)	Mention the various String Manipulation Functions in C.	[2M]
	h)	What is the difference between a pointer and dangling pointer?	[2M]
	i)	Compare structures and unions.	[2M]
	j)	What is the difference between *fscanf() and fprintf()*? Give an example.	[2M]

PART – B (50 MARKS)

UNIT-I

2.	a)	Give the block diagram of a computer. Explain functionality of each component.	[5M]
	b)	Define algorithm? Write the characteristics of an algorithm. Give example.	[5M]

(OR)

3	a)	Write a program to find the factorial of a given number and analyze its time complexity.	[5M]
	b)	Explain about relational and logical operators and write a C program by using these operators.	[5M]

UNIT-II

4.	a)	Write about nested for loop statement with examples.	[5M]
	b)	Write program to check whether the given integer is palindrome or not by using for loop.	[5M]

(OR)

5.	a)	What are selection statements? What is the necessity of selection statements? Explain.	[5M]
	b)	Develop a C program to check whether a number entered by user is even or odd. Use if else statement.	[5M]

UNIT-III

6.	a)	Develop a program to count sum of even numbers in a given array.	[5M]
	b)	Develop a program to append the one string to another string without using predefined functions.	[5M]

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(OR)

7. a) Write the concepts of arrays and illustrate different dimensions defined on array with example. [5M]

   b) Develop a C program to multiply two 'm × n' matrices. Cover all necessary conditions. [5M]

UNIT-IV

8. a) Define Structure? Explain how to declare a structure, accessing structure members with an example program. [5M]

   b) Explain the array of pointers with example. [5M]

(OR)

9. a) Develop a program using pointers to read in an array of integers and print its elements in reverse order. [5M]

   b) Define the union and write a program to declare and access the union members. Consider employee details as an example. [5M]

UNIT-V

10. a) Develop a C program to count the number of characters in a file. [5M]

    b) What is the difference between iterative and recursive functions. Explain with finding factorial. [5M]

(OR)

11. a) Illustrate the concepts of functions calls and return types. [5M]

    b) Define File? Briefly explain various operations on files with examples. [5M]

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Code No: **R231107** **R23** **SET - 4**

I B. Tech I Semester Regular Examinations, January-2024
INTRODUCTION TO PROGRAMMING

(Common to All Branches)

Time: 3 hours Max. Marks: 70

*Note: 1. Question paper consists of two parts (**Part-A** and **Part-B**)*
*2. All the questions in **Part-A** is Compulsory*
*3. Answer **ONE** Question from **Each Unit** in **Part-B***

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PART –A (20 Marks)

1.	a)	What is Ternary operator and Conditional operator?	[2M]
	b)	Define keyword, constant and variable.	[2M]
	c)	How switch case works without break statement?	[2M]
	d)	Write the syntax of looping statements.	[2M]
	e)	What is multi-dimensional array?	[2M]
	f)	Write and explain the syntax of function?	[2M]
	g)	What is pointer to pointer?	[2M]
	h)	Discriminate putchar() and getchar()	[2M]
	i)	Define Union? How to represent a union?	[2M]
	j)	Write about different error handling functions on files.	[2M]

PART – B (50 MARKS)

UNIT-I

2.	a)	What is a programming language? Why C language is called as Middle level programming language? Explain	[5M]
	b)	Define flowchart? How it is useful in writing the programs? Explain about different symbols in Flow chart? Give Example.	[5M]

(OR)

3	a)	Explain about Compiler, Interpreter, and Assembler.	[5M]
	b)	Define variable? What are the rules for declaring the variables?	[5M]

UNIT-II

4.	a)	Differentiate between While and do-While loops with an example.	[5M]
	b)	Develop a program to calculate the sum of digits in a given number by using while loop.	[5M]

(OR)

5.	a)	Differentiate the conditional operator with if else statement. Explain with the help of an example.	[5M]
	b)	Illustrate the use of special control constructs goto, break, continue and return.	[5M]

UNIT-III

6.	a)	Write a C program to calculate the sum and difference of two 2-dimensional Matrices.	[5M]
	b)	Explain the following string handling functions: (i) strcpy( ) (ii) strlen( ) (iii)strcat( ) (iv) strcmp( )	[5M]

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(OR)

7. a) Write a program to find second highest and smallest number in the given array. [5M]
   b) Illustrate the string operations: i) Copying the string ii) Reversing the string iii) Update the Characters in string iv) Finding the string length [5M]

UNIT-IV

8. a) List the difference between structures and unions. Explain with an example. [5M]
   b) Write a program to show the subject registration for an exam by the student using structures. [5M]

(OR)

9. a) Define a pointer in C language? Explain about NULL character. [5M]
   b) How structure is different form an array? Explain with program. [5M]

UNIT-V

10. a) Distinguish user defined and predefined function. Explain with one example. [5M]
    b) Develop a C program to append the contents of one file to another file. [5M]

(OR)

11. a) Develop a program to find the given number is prime or not using functions. [5M]
    b) List out modes of operations to open a file. [5M]

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Code No: **R231109** **R23** **SET - 1**

I B. Tech I Semester Regular Examinations, January-2024
BASIC ELECTRICAL AND ELECTRONICS ENGINEERING

(Common to CE, ME, ECE, IT, AME, Mining, Robotics, Agri E, ECE-Allied, CSE- Allied)

Time: 3 hours Max. Marks: 70

*Note: 1. Question paper consists of two parts (**Part-A** and **Part-B**)*
*2. All the questions in **Part-A** is Compulsory*
*3. Answer **ONE** Question from each Unit in **Part-B***

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PART –A (10 Marks)

1.	a)	What is meant by a closed circuit?	[1M]
	b)	State Kirchhoff's voltage law.	[1M]
	c)	What is the function of a D.C motor?	[1M]
	d)	What is meant by electric shock?	[1M]
	e)	Write the function of electrical measuring instrument.	[1M]
	f)	Draw PN junction of a diode.	[1M]
	g)	Write two benefits of Nano electronics.	[1M]
	h)	Write the function of a capacitor filter.	[1M]
	i)	Draw the symbols of OR and NOT gates.	[1M]
	j)	Write the representation of decimal system.	[1M]

PART – B (60 MARKS)

Basic Electrical Engineering

UNIT-I

2.		State and prove super position theorem for an electrical 'T' network excited with two equal D.C sources.	[10M]
		(OR)	
3	a)	Draw impedance triangle and explain the resultant impedance with relevant relations.	[5M]
	b)	An alternating voltage is having the equation as V=167.8sin314t. Find the R.M.S voltage, frequency and the instantaneous voltage when t=3.7ms?	[5M]

UNIT-II

4.		Draw the construction diagram and explain in detail about the working principle of single phase transformer.	[10M]
		(OR)	
5.	a)	Elaborate the essential features of indicating instruments with diagrams.	[5M]
	b)	Find the e.m.f generated by a 6 pole D.C generator having 440 conductors and driven at a speed of 1400 r.p.m connected as lap and wave windings? The flux per pole is 0.032wb.	[5M]

UNIT-III

6.	a)	Compare the non earthed and earthed electrical networks with advantages.	[5M]
	b)	Explain the electricity bill calculation of a domestic consumer with an example.	[5M]
		(OR)	
7.		Draw neat diagram and explain the over load protection by using miniature circuit breaker.	[10M]

Basic Electronics Engineering

UNIT-I

8.	a)	Discuss in detail about the advantages and disadvantages of electronic components and switches.	[5M]
	b)	Derive and analyze the common base characteristics of a transistor configuration.	[5M]

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(OR)

9. a) Draw and explain the junction break down characteristics of a zener diode. [5M]

   b) A diode with 720mW maximum power dissipation at 25^0C has a 5.2mW/^{0}C derating factor. If the forward voltage drop remains constant at 0.8V, find the maximum forward current at 25^0C and at 70^0C. [5M]

UNIT-II

10. Describe the working of a full wave bridge rectifier with output waveforms. [10M]

(OR)

11. a) Write briefly about the requirements and specifications of DC power supply. [5M]

    b) Summarize the outputs and outcomes of a zener voltage regulator circuit. [5M]

UNIT-III

12. a) Describe the functions of registers and counters with an example. [5M]

    b) Find the decimal numbers of the following binary numbers. [5M]
    i) 110100 ii) 110111 iii) 1111111

(OR)

13. a) Draw the basic circuit diagram and explain the operation of Flip-flop. [5M]

    b) State and prove associative and distributive laws of Boolean algebra with example. [5M]

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Code No: **R231109** **R23** **SET - 2**

I B. Tech I Semester Regular Examinations, January-2024
BASIC ELECTRICAL AND ELECTRONICS ENGINEERING

(Common to CE, ME, ECE, IT, AME, Mining, Robotics, Agri E, ECE-Allied, CSE- Allied)

Time: 3 hours Max. Marks: 70

*Note: 1. Question paper consists of two parts (**Part-A** and **Part-B**)*
*2. All the questions in **Part-A** is Compulsory*
*3. Answer **ONE** Question from each Unit in **Part-B***

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PART –A (10 Marks)

1.	a)	What is meant by an open circuit?	[1M]
	b)	State Kirchhoff's current law.	[1M]
	c)	Write the function of a D.C generator.	[1M]
	d)	What is meant by transformer core?	[1M]
	e)	What is the indication of power rating of electrical equipment?	[1M]
	f)	What is meant by a vacuum tube?	[1M]
	g)	Indicate the terminals of diode symbol.	[1M]
	h)	Draw the output voltage wave of a rectifier.	[1M]
	i)	Draw the symbols of OR and NOR gates.	[1M]
	j)	Write about the junctions of a bipolar junction transistor.	[1M]

PART – B (60 MARKS)

Basic Electrical Engineering

UNIT-I

2.		State and prove super position theorem for an electrical 'T' network excited with two unequal D.C sources.	[10M]

(OR)

3	a)	Draw power triangle and explain the resultant impedance with relevant relations.	[5M]
	b)	An alternating current has an effective value of 214A. If its frequency is 50Hz, determine the average value and write the expression for the current.	[5M]

UNIT-II

4.		Draw the construction diagram and explain in detail about the working principle of a DC electrical machine having rotation as output.	[10M]

(OR)

5.	a)	Draw the diagram and explain the working principle of permanent magnet moving coil instrument.	[5M]
	b)	A wave connected armature winding has 19 slots with 44 conductors per slot. If the flux per pole is 0.066wb and the number of poles is 8, calculate the speed at which the generator should run to give 564V? Calculate the speed if the armature is lap connected.	[5M]

UNIT-III

6.	a)	Elaborate different types of earthing methods and disadvantages.	[5M]
	b)	Write briefly about the essential requirements of hydel power generation.	[5M]

(OR)

7.	a)	Differentiate conventional and non-conventional energy resources.	[5M]
	b)	How to calculate the electricity bill for domestic consumer? Give examples.	[5M]

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Code No: **R231109** **R23** **SET - 2**

Basic Electronics Engineering

UNIT-I

8. a) Draw and explain the forward and reverse characteristics of a PN junction diode. [5M]

   b) Derive and analyze the common emitter characteristics of a transistor configuration. [5M]

(OR)

9. a) Describe the reverse break down operation of a zener diode with characteristics. [5M]

   b) Find the maximum and minimum levels of V_F for a germanium diode with V_F=0.4V at 20^0C when operated over a temperature range of 12^0C to 88^0C. Find the device dynamic resistances at the temperature extremes if I_F is 17mA. [5M]

UNIT-II

10. Draw circuit diagram and explain the working principle of zener voltage regulator. [10M]

(OR)

11. a) Write briefly about the characteristic features of capacitor filter. [5M]

    b) List out the components and write the functions of public address system. [5M]

UNIT-III

12. a) Explain the functionality of sequential circuits with block diagram. [5M]

    b) Find the decimal number of the following binary numbers. [5M]
    i) 110011.11001 ii) 1010.1100 iii) 1110.1011

(OR)

13. a) Derive and explain the truth table of XNOR gate with circuit diagram. [5M]

    b) State and prove commutative, associative laws of Boolean algebra with an example. [5M]

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Code No: **R231109** **R23** **SET - 3**

I B. Tech I Semester Regular Examinations, January-2024
BASIC ELECTRICAL AND ELECTRONICS ENGINEERING

(Common to CE, ME, ECE, IT, AME, Mining, Robotics, Agri E, ECE-Allied, CSE- Allied)

Time: 3 hours Max. Marks: 70

*Note: 1. Question paper consists of two parts (**Part-A** and **Part-B**)*
*2. All the questions in **Part-A** is Compulsory*
*3. Answer **ONE** Question from each Unit in **Part-B***

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PART –A (10 Marks)

1.	a)	What is meant by a series circuit?	[1M]
	b)	Draw the indications of DC and AC supply voltages.	[1M]
	c)	Define e.m.f of a D.C generator.	[1M]
	d)	Define tariff of electrical energy.	[1M]
	e)	What is meant by controlling torque of an instrument?	[1M]
	f)	What is meant by a PN junction?	[1M]
	g)	Write two benefits of electronic circuits.	[1M]
	h)	Draw the output current of a full wave rectifier.	[1M]
	i)	Draw the symbols of NOT and AND gates.	[1M]
	j)	Write the representations of binary system.	[1M]

PART – B (60 MARKS)

Basic Electrical Engineering

UNIT-I

2.		Derive the expressions and analyze the voltage-current relationships of R,L,C elements with waveforms.	[10M]

(OR)

3	a)	Derive and explain the average value of an alternating current with necessary waveforms.	[5M]
	b)	A 50Hz sinusoidal voltage is given as e=212sinωt is supplied to a pure resistance of 24 ohms. Write the equation for the current and power? Determine the R.M.S current and average power? Also draw the phasor diagram.	[5M]

UNIT-II

4.		Draw the construction diagram and explain in detail about the working principle of a synchronous generator.	[10M]

(OR)

5.	a)	Draw the diagram and explain the working principle of attraction type moving iron instrument.	[5M]
	b)	A 44kVA, 1000/415V, 50Hz single phase transformer has 88 turns on the primary. Find i) The number of turns on the secondary, ii) The full load primary and secondary currents and iii) The maximum value of the flux.	[5M]

UNIT-III

6.	a)	Write briefly about the two part electricity tariff with an example.	[5M]
	b)	Summarize the safety precautions to prevent the electric shock.	[5M]

(OR)

7.		Draw the layout diagram and explain in detail about the working principle of wind power generation.	[10M]
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Code No: **R231109** **R23** **SET - 3**

Basic Electronics Engineering

UNIT-I

8. a) List out and explain various parameters of a diode. [5M]

   b) Derive and analyze the common collector characteristics of a transistor configuration. [5M]

(OR)

9. a) Draw the symbol and discuss about various parameters of a Zener diode. [5M]

   b) A diode with a 1.2W maximum power dissipation at 22^0C has a 4mW/^{0}C derating factor. Find the maximum power that may be dissipated in the diode when its temperature is 78^0C. [5M]

UNIT-II

10. By using the block diagram, explain in detail about the working of public address system. [10M]

(OR)

11. a) Explain the frequency response of common emitter RC coupled amplifier with relevant relations. [5M]

    b) List out the components and explain briefly about the electronic instrumentation system. [5M]

UNIT-III

12. a) Derive the output and analyze the half adder circuit with diagram. [5M]

    b) Find the binary form representation of the following decimal numbers. [5M]
    i) 22.5 ii) 12.725 iii) 0.8657

(OR)

13. a) Derive and explain the truth table of XOR gate with circuit diagram. [5M]

    b) Explain in detail about the basic properties of Boolean algebra associated with 'OR' operation. [5M]

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Code No: **R231109** **R23** **SET - 4**

I B. Tech I Semester Regular Examinations, January-2024
BASIC ELECTRICAL AND ELECTRONICS ENGINEERING

(Common to CE, ME, ECE, IT, AME, Mining, Robotics, Agri E, ECE-Allied, CSE- Allied)

Time: 3 hours Max. Marks: 70

*Note: 1. Question paper consists of two parts (**Part-A** and **Part-B**)*
*2. All the questions in **Part-A** is Compulsory*
*3. Answer **ONE** Question from each Unit in **Part-B***

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PART –A (10 Marks)

1.	a)	Define phase angle of AC quantities.	[1M]
	b)	What is the output of an alternator?	[1M]
	c)	What is meant by a parallel circuit?	[1M]
	d)	Define the 'unit' of electricity billing.	[1M]
	e)	Write the limitations of ohm's law.	[1M]
	f)	Write the main features of PN junction diode.	[1M]
	g)	Draw the symbol of zener diode.	[1M]
	h)	What is meant by an amplifier?	[1M]
	i)	Draw the symbols of NOT and NOR gates.	[1M]
	j)	Draw the truth table of AND gate.	[1M]

PART – B (60 MARKS)

Basic Electrical Engineering

UNIT-I

2.		Derive the expressions and analyze the voltage-current relationships of R,L,C elements with phasor diagrams.	[10M]

(OR)

3	a)	Derive and explain the root mean square value of an alternating current with necessary waveforms.	[5M]
	b)	A coil wire carries simultaneously the instantaneous currents as i_1=15sinωt Amps and i_2=12sin (ωt+60^0) Amps. Calculate the total current, the total power expended in the coil if the resistance of the coil is 17 ohms and the energy consumed by the coil when the two currents flow through it for 5 hours.	[5M]

UNIT-II

4.		Draw the construction diagram and explain in detail about the working principle of three phase induction motor.	[10M]

(OR)

5.	a)	Draw the diagram and explain the working principle of repulsion type moving iron instrument.	[5M]
	b)	A single phase transformer has 660 turns on the primary and 92 turns on the secondary. If the primary is connected to 3600V supply, calculate the secondary voltage? If the secondary current is 218A find the primary current.	[5M]

UNIT-III

6.	a)	Explain in detail about the advantages and disadvantages of solar power generation systems.	[5M]
	b)	Discuss about the importance of power rating of electrical appliances with an example.	[5M]

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(OR)

7. Draw the layout diagram and explain in detail about the working principle of nuclear, solar power generation. [10M]

Basic Electronics Engineering

UNIT-I

8. a) Derive and explain in detail about the DC equivalent circuit of a junction diode. [5M]

   b) A zener diode with V_Z=4.7V has Z_Z equal to 24 ohms when I_Z=27mA. Find the upper and lower limits of V_Z changes by ±4mA. [5M]

(OR)

9. a) Draw the circuit diagram and explain the small signal CE amplifier operation. [5M]

   b) Derive and analyze the forward and reverse bias characteristics of a diode. [5M]

UNIT-II

10. With a neat sketch, describe the working of electronic instrumentation system. [10M]

(OR)

11. a) Explain the working principle of common emitter RC coupled amplifier with circuit diagram. [5M]

    b) Derive and explain the output voltage waveforms of a full wave rectifier. [5M]

UNIT-III

12. a) Explain the generation of BCD code and Gray Code. [5M]

    b) Convert the following decimal number in to base-2 numbers. [5M]
    i) 17 ii) 0.75725 iii) 11.822

(OR)

13. a) Explain the properties of hamming code with an example. [5M]

    b) Explain in detail about the basic properties of Boolean algebra associated with 'AND' operation. [5M]

*****

Code No: **R231106** **R23** **SET - 1**

I B. Tech I Semester Regular Examinations, January-2024
BASIC CIVIL AND MECHANICAL ENGINEERING

(Common to EEE, CSE, Chemical, FT, PT, Ph. E)

Time: 3 hours Max. Marks: 70

*Note: 1. Question paper consists of two parts (**Part-A** and **Part-B**)*
*2. All the questions in **Part-A** is Compulsory*
*3. Answer **ONE** Question from **Each Unit** in **Part-B***

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PART –A (10 Marks)

1.	a)	Write various disciplines of civil engineering.	[1M]
	b)	What are the leveling instruments used for leveling?	[1M]
	c)	What is Hydrology?	[1M]
	d)	Write the types of Pavements.	[1M]
	e)	What are the construction materials?	[1M]
	f)	List the mechanical engineer work on marine sectors.	[1M]
	g)	Define composite.	[1M]
	h)	Define smart manufacturing.	[1M]
	i)	Compare Otto and Diesel cycles.	[1M]
	j)	List the gear drives applications.	[1M]

PART – B (60 Marks)

Basic Civil Engineering

UNIT-I

2.	a)	Discuss the role of civil engineers in society.	[5M]
	b)	Discuss about the various types of Aggregates with their sizes and shapes.	[5M]

(OR)

3	a)	Explain the importance of Building Construction and Planning.	[5M]
	b)	Explain the purpose of studying Geo-technical Engineering.	[5M]

UNIT-II

4.	a)	Write a few objectives of Surveying.	[5M]
	b)	What is leveling? Write a few types of leveling.	[5M]

(OR)

5.	a)	Explain how to do Angular Measurements using surveying instruments?	[5M]
	b)	Write briefly about contour mapping.	[5M]

UNIT-III

6.	a)	Discuss about Rainwater Harvesting.	[5M]
	b)	Explain the Sources of water.	[5M]

(OR)

|''|'||'|''|''||'|'|
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7. Write the importance of Transportation in Nation's economic development. [10M]

Basic Mechanical Engineering

UNIT-I

8. a) Explain the mechanical engineer work on automotive sectors. [5M]
   b) Discuss the types, properties and applications of ceramics. [5M]

(OR)

9. a) Explain the classification of engineering materials. [5M]
   b) Define smart material. Explain the types of smart materials and their functions. [5M]

UNIT-II

10. a) What are the important types of metal joining processes? [5M]
    b) Discuss the types of CNC's and enlist the profitable applications of CNC? [5M]

(OR)

11. a) State advantages and limitations of water tube boilers. [5M]
    b) Discuss the classification of IC engines. [5M]

UNIT-III

12. a) Describe the working principle of nuclear power plants. [5M]
    b) Explain the open belt and cross belt drive in power transmission. Also give the applications. [5M]

(OR)

13. a) Sketch a robot and name its parts. [5M]
    b) Explain the different applications of robots. [5M]

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Code No: **R231106** **R23** **SET - 2**

I B. Tech I Semester Regular Examinations, January-2024
BASIC CIVIL AND MECHANICAL ENGINEERING

(Common to EEE, CSE, Chemical, FT, PT, Ph. E)

Time: 3 hours Max. Marks: 70

*Note: 1. Question paper consists of two parts (**Part-A** and **Part-B**)*
*2. All the questions in **Part-A** is Compulsory*
*3. Answer **ONE** Question from **Each Unit** in **Part-B***

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PART –A (10 Marks)

1.	a)	Write the scope of studying structural engineering.	[1M]
	b)	Discuss the purpose of Surveying.	[1M]
	c)	Write a few types of Dams.	[1M]
	d)	Write the specifications for quality of water.	[1M]
	e)	Write the types of measurements in surveying.	[1M]
	f)	List any four applications of smart materials.	[1M]
	g)	What is 3D Printing? List its applications.	[1M]
	h)	Differentiate between SI and CI engine.	[1M]
	i)	Enlist various belt drives. Name any three belt materials.	[1M]
	j)	Write the name of different types of power plant.	[1M]

PART – B (60 Marks)

Basic Civil Engineering

UNIT-I

2.	a)	Write the ingredients used in Cement concrete and its proportions.	[5M]
	b)	Write the purpose of studying Hydraulics and Water Resources Engineering.	[5M]

(OR)

3	a)	Explain the purpose of studying Environmental Engineering.	[5M]
	b)	Write the purpose of studying Transportation Engineering.	[5M]

UNIT-II

4.	a)	Explain how to do Horizontal Measurements using surveying instruments.	[5M]
	b)	Explain about compass Surveying.	[5M]

(OR)

5.	a)	Explain the purpose of Leveling instruments.	[5M]
	b)	Write a few temporary adjustments in Leveling instruments.	[5M]
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Code No: **R231106** **R23** **SET - 2**

UNIT-III

6. a) Explain any two types of Highway Pavements. [5M]
   b) Write the various instruments used for horizontal measurement. [5M]

(OR)

7. a) Write the difference between Flexible Pavements and Rigid Pavements. [5M]
   b) Discuss about the need of a) Harbour b) Tunnel c) Airport. [5M]

Basic Mechanical Engineering

UNIT-I

8. a) Explain the mechanical engineer work on marine sectors. [5M]
   b) List Engineering Materials on basis of natural and manmade existence. [5M]

(OR)

9. a) State the composition and application of any four ferrous metals. [5M]
   b) What are the key applications of composite materials in Aerospace and Automotive industries? [5M]

UNIT-II

10. a) What is casting? Explain the principle of casting with neat sketch. [5M]
    b) Using a block diagram, explain components of a CNC machine. [5M]

(OR)

11. a) What are the industrial applications of air conditioning? [5M]
    b) List the components of electric vehicles? Explain. [5M]

UNIT-III

12. a) Explain the working principle of hydro power plant with neat sketch. [5M]
    b) Write short note on chain drives. [5M]

(OR)

13. a) List the types of robot configurations? Explain any one with neat sketch. [5M]
    b) Explain the use of robots in medical applications. [5M]

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Code No: **R231106** **R23** **SET - 3**

I B. Tech I Semester Regular Examinations, January-2024
BASIC CIVIL AND MECHANICAL ENGINEERING

(Common to EEE, CSE, Chemical, FT, PT, Ph. E)

Time: 3 hours Max. Marks: 70

*Note: 1. Question paper consists of two parts (**Part-A** and **Part-B**)*
*2. All the questions in **Part-A** is Compulsory*
*3. Answer **ONE** Question from **Each Unit** in **Part-B***

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PART –A (10 Marks)

1.	a)	Write any four construction materials.	[1M]
	b)	Write a few instruments used in Surveying.	[1M]
	c)	Draw the sketch of dam.	[1M]
	d)	Write the types of chains in surveying.	[1M]
	e)	Write briefly about Conveyance Structures.	[1M]
	f)	What is the role of mechanical engineering in society?	[1M]
	g)	Define casting. List the casting defects.	[1M]
	h)	List out the applications of refrigeration system.	[1M]
	i)	What is the difference between belt drive and chain drive?	[1M]
	j)	List the various degrees of freedom in robot configurations.	[1M]

PART – B (60 Marks)

Basic Civil Engineering

UNIT-I

2.	a)	Explain about Prefabricated construction Techniques.	[5M]
	b)	Discuss the role of steel in building construction.	[5M]

(OR)

3	a)	Explain about the mix proportion of cement concrete.	[5M]
	b)	Explain any two basic tests on cement concrete.	[5M]

UNIT-II

4.	a)	Write the importance of using leveling instrument in civil construction works.	[5M]
	b)	Explain how to use leveling instrument on site.	[5M]

(OR)

5.	a)	Write the purpose of drawing contours.	[5M]
	b)	Explain about contour intervals with sketch.	[5M]

UNIT-III

6.	a)	Draw hydrological cycle and mention its parts.	[5M]
	b)	What are the components and functions of rigid pavement?	[5M]
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(OR)

7. a) What are the components and functions of flexible pavement? [5M]
   b) Explain about Quality of water. [5M]

Basic Mechanical Engineering

UNIT-I

8. a) Compare mechanical engineering to the other traditional engineering fields. [5M]
   b) Write the differences between Ferrous and Non-Ferrous metals. [5M]

(OR)

9. a) Explain composite materials with its properties and applications. [5M]
   b) Explain types and properties of ceramics. [5M]

UNIT-II

10. a) Explain the manufacturing process of forming. [5M]
    b) Write short note on smart manufacturing. [5M]

(OR)

11. a) List the components of hybrid vehicles? Explain. [5M]
    b) Explain the working of two stroke petrol engine with neat sketch. [5M]

UNIT-III

12. a) Describe the working principle of steam power plants. [5M]
    b) Write a short note on the classification of gears. [5M]

(OR)

13. a) Write short note on robot joints and links. [5M]
    b) "Robots find applications not only in the industry"- Explain three non-industrial applications of robots. [5M]

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Code No: **R231106** **R23** **SET - 4**

I B. Tech I Semester Regular Examinations, January-2024
BASIC CIVIL AND MECHANICAL ENGINEERING

(Common to EEE, CSE, Chemical, FT, PT, Ph. E)

Time: 3 hours Max. Marks: 70

*Note: 1. Question paper consists of two parts (**Part-A** and **Part-B**)*
*2. All the questions in **Part-A** is Compulsory*
*3. Answer **ONE** Question from **Each Unit** in **Part-B***

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PART –A (10 Marks)

1.	a)	Write the various sizes of Bricks.	[1M]
	b)	What is the use of chain survey?	[1M]
	c)	Write the difference between Azimuth and Bearing.	[1M]
	d)	What is reservoir?	[1M]
	e)	What is the purpose of cement?	[1M]
	f)	Write about Rope Drives.	[1M]
	g)	Compare four stroke engines with two stroke engines.	[1M]
	h)	Why diesel engines have higher compression ratio compared to petrol engines?	[1M]
	i)	State the importance of power plants.	[1M]
	j)	Write a note on movements of Robots.	[1M]

PART – B (60 Marks)

Basic Civil Engineering

UNIT-I

2.	a)	Write about various grades of cement and its applications.	[5M]
	b)	Explain any two basic tests on cement.	[5M]

(OR)

3	a)	Explain any two basic tests on aggregates.	[5M]
	b)	Write few types of cement and its applications.	[5M]

UNIT-II

4.	a)	Explain step by step procedure of locating contours.	[5M]
	b)	Explain about measurement of Angles.	[5M]

(OR)

5.	a)	What are the accessories for a chain survey? Explain the functions of each.	[5M]
	b)	What is different between magnetic bearing and true bearing?	[5M]

UNIT-III

6.	a)	Write the purpose of reservoirs.	[5M]
	b)	Explain about Railway Engineering.	[5M]

(OR)

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7. a) How Transportation engineering is important in economic development? Discuss. [5M]
   b) Write a note on Hydrology and its ways of structuring. [5M]

Basic Mechanical Engineering

UNIT-I

8. a) What is mechanical engineering? Explain the role of mechanical engineering in industries. [5M]
   b) Define smart materials. List the properties and applications of smart materials. [5M]

(OR)

9. a) Define ferrous and Nonferrous material with examples. [5M]
   b) Define a composite material. How are composite materials classified? Give example for each. [5M]

UNIT-II

10. a) Define CNC? Explain the important features of CNC machines. [5M]
    b) Write short note on 3D printing. [5M]

(OR)

11. a) Derive an expression to find the efficiency of an Otto cycle. [5M]
    b) Define one ton of refrigeration. Explain the properties of ideal refrigerants. [5M]

UNIT-III

12. a) Draw general layout of Hydro-Electric Power plant showing all components. [5M]
    b) Write short note on Gear drives and its applications. [5M]

(OR)

13. a) Justify the statement: Actuators are the muscles of robots. [5M]
    b) Briefly explain the need for robots in industries. [5M]

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Code No: **R231101** **R23** **SET - 1**

I B. Tech I Semester Regular Examinations, January-2024
COMMUNICATIVE ENGLISH

(Common to EEE, CSE, Chemical E, FT, PT, Ph. Engg)

Time: 3 hours Max. Marks: 70

*Note: 1. Question paper consists of two parts (**Part-A** and **Part-B**)*
*2. All the questions in **Part-A** is Compulsory*
*3. Answer **ONE** Question from **Each Unit** in **Part B***

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PART –A (20 Marks)

1.	a)	What did Jim do to give a gift to his wife?	[2M]
	b)	What type of water bodies are mentioned in the poem 'The Brook'?	[2M]
	c)	How Elon Musk get inspired in Business and Technology?	[2M]
	d)	Why did Harvey think elementary Education needed to be rethought?	[2M]
	e)	Write the difference between Skimming and Scanning.	[2M]
	f)	How does Intrapersonal communication help us to overcome challenges?	[2M]
	g)	What is sequencing? How sentences are arranged in it?	[2M]
	h)	Where do you use Simple present tense? Give examples.	[2M]
	i)	What are Homophones? Give examples.	[2M]
	j)	Define Brainstorming.	[2M]

PART – B (50 MARKS)

UNIT-I

2.	a)	Bring out the relationship between Della and the Queen of Sheba.	[5M]
	b)	Define **Prefix**. Write examples for inter, non, pre, semi, and tri prefixes.	[5M]

(OR)

3	a)	Show how the twist in the tale makes the story of Jim and Della a moral lesson.	[5M]
	b)	Write about Punctuation. Explain about Colon, Semicolon, Apostrophe, Comma, and Capital letters.	[5M]

UNIT-II

4.	a)	For Men may come, Men may go But I go on forever- Explain.	[5M]
	b)	Write a paragraph on the Influence of **Social media on Youth**.	[5M]

(OR)

5.	a)	Describe the landscape in the poem 'The Brook'.	[5M]
	b)	Frame sentences for the given **Homonyms.** 1) Play, Play 2) Scale, Scale 3) Tear, Tear 4) Right, Right 5) Light, Light	[5M]

UNIT-III

6.	a)	What is Space X and what has been its impact on space exploration?	[5M]
	b)	**Summarize** the following passage. Smith's car broke down. He stopped by the roadside and screamed at people to stop and help him. But no one stopped for him. He continued howling and howling for hours. People kept driving by. After getting tired, he picked up a sheet and wrapped it around himself. Then, he started spinning on his spot. He grew dizzy. He kept spinning and spinning until he fell asleep.	[5M]

|'''|'|'|''||'''||||
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(OR)

7. a) Explain the achievements of Elon Musk. [5M]

   b) **Fill in the blanks with the correct verb forms.** [5M]
   1. Suma ------- (watch) a film when her brother called her.
   2. Raju has been------- (wear) this expensive bracelet for quite some time now.
   3. Rahul ------- (graduate) from law school.
   4. The Sun---- (set) in the east.
   5. ------- (teach) morals and ethics at the right age.

UNIT-IV

8. a) What happens when Eric and Betie start playing with the peace toys? How do they transform the toys? [5M]

   b) Draw Pie Chart and Explain how it conveys information. [5M]

(OR)

9. a) How does NPC object to traditional children's toys like soldiers and guns? [5M]

   b) Write a letter to your friend on regulating violent video games and suggest your ideas to control. [5M]

UNIT-V

10. a) What are the advantages of strong Intra-personal communication skills? [5M]

    b) Write an essay on the topic **Benefits of Free Education**. [5M]

(OR)

11. a) How do you manage stress with the help of Intra-personal communication? [5M]

    b) **Correct the following sentences** [5M]
    1. This is the most unique dress.
    2. The dog lost his bone.
    3. She is beautiful then her.
    4. Smith and me went to the mall.
    5. There are less dresses.

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Code No: **R231101** **R23** **SET - 2**

I B. Tech I Semester Regular Examinations, January-2024
COMMUNICATIVE ENGLISH

(Common to EEE, CSE, Chemical E, FT, PT, Ph. Engg)

Time: 3 hours Max. Marks: 70

*Note: 1. Question paper consists of two parts (**Part-A** and **Part-B**)*
*2. All the questions in **Part-A** is Compulsory*
*3. Answer **ONE** Question from **Each Unit** in **Part-B***

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PART –A (20 Marks)

1.	a)	What were the prized possessions of James Dillingham Youngs?	[2M]
	b)	Why does the poet use the word bicker in the poem 'The Brook'?	[2M]
	c)	Give a brief account of two of Musk's early business ventures.	[2M]
	d)	What expectations did the children have from their uncle's toys?	[2M]
	e)	How does intra-personal communication relate to self-awareness?	[2M]
	f)	Define Skimming. Give examples.	[2M]
	g)	Where do you use Capital letters? Give examples.	[2M]
	h)	What are the three steps involved in Note making?	[2M]
	i)	Name the parts of a formal letter.	[2M]
	j)	Frame two sentences for the patterns i) Subject- Verb ii) Subject- Verb- Adverb	[2M]

PART – B (50 MARKS)

UNIT-I

2.	a)	Examine the significance and appropriation of the title of the story 'The Gift of the Magi.'	[5M]
	b)	Illustrate the main theme of scanning to look for specific pieces of information.	[5M]

(OR)

3	a)	How do Jim's and Della's actions symbolize the strength of their love for each other?	[5M]
	b)	Write **Synonyms** for the following i) Ecstatic ii) Coot iii) Enhance iv) Primitive v) Crucial	[5M]

UNIT-II

4.	a)	The Brook offers a visual treat of sight and sound. Explain.	[5M]
	b)	Write a **paragraph** on a Smartphone.	[5M]

(OR)

5.	a)	How did the poet draw parallelism between the journey of the Brook and the life of Man?	[5M]
	b)	**Fill in the Blanks with Homophones** i) The wind ---- very hard. (blue, blew) ii) Ruby saw--- dogs playing. (two, to) iii) ---- like to play Soccerat the park.(I, Eye) iv) Bella asked her brother ---- the glue was (where wear) v) The teacher asked to--- the name on the board.(write, right	[5M]

UNIT-III

6.	a)	How has Musk proved to be a visionary leader of cutting–edge technology? Discuss with relevant examples.	[5M]
	b)	Write two compound words for each i) Noun ii) Adjective iii) Preposition iv) Numerals v) Pronoun	[5M]

(OR)

|'''|'|'|''||'''||||
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7. a) What are the key decisions Elon Musk made to get where he is today? [5M]

   b) **Fill in the blanks with Collocations**(great time, rough time, in time, spare time, precious time) [5M]

      i) Tourists will have a ---- in the Andaman Islands.
      ii) We went to the cinema-------
      iii) Leela has been through some-----
      iv) Binu spends all his --- helping others.
      v) I spend my--- watching nature.

UNIT-IV

8. a) Explain the influence of external factors on children's behavior and attitude related to the story 'The Toys of Peace.' [5M]

   b) Draw Pictograph and Explain how it conveys information. [5M]

(OR)

9. a) How does Harvey's reaction to the boys' imaginative play with the peace toys reflect the failure of the experiment? [5M]

   b) Write a Resume of your own with a covering letter applying for the post of Project Manager in WIPRO Company. [5M]

UNIT-V

10. a) What are the steps to be taken to enhance Intrapersonal communication skills? [5M]

    b) Write an essay on **Face Book should be banned.** [5M]

(OR)

11. a) Mindfulness practices like meditation can enhance Intrapersonal communication – Elucidate. [5M]

    b) **Reading Comprehension** [5M]

Reading is a fundamental skill that plays a vital role in our lives. It's not just about deciphering words on a page but about the doors it opens, the knowledge it imparts, and the world it allows us to explore. Reading is an essential tool for learning, expanding our horizons, and fostering imagination. When we read, we acquire knowledge. Whether it's reading textbooks, news papers, or online articles. We gain information that helps us understand the world. Books are a treasure trove of knowledge. They contain the wisdom of generations, the discoveries of great minds, and the stories of diverse cultures. Reading books can educate us on history, science, literature, and countless other subjects. It's like having a mentor, guiding us through the complexities of life.

Reading skills develop critical thinking, analytical skills, and the ability to communicate well. A person who reads regularly has a broader vocabulary, better writing skills, and can express his thoughts and ideas.

E-books and audio books have made reading more accessible and convenient. There is something timeless and intimate about holding a physical book, flipping its pages, and smelling the scent of paper and ink.

Reading is a cornerstone of education, personal growth, and cultural enrichment. It empowers us with knowledge, broadens our perspectives, ignites our imagination, and equips us with essential skills. Reading is a journey that enriches our lives and shapes us into more informed, empathetic, and creative individuals.

Answer the following questions

i) What are some of the benefits of reading mentioned in the passage?
ii) How does reading broaden our horizons and foster empathy?
iii) What role does reading play in developing critical thinking and communication skills?
iv) What are the advantages of reading physical books compared to digital formats?
v) How does Reading make a full man?

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Code No: **R231101** **R23** **SET - 3**

I B. Tech I Semester Regular Examinations, January-2024
COMMUNICATIVE ENGLISH

(Common to EEE, CSE, Chemical E, FT, PT, Ph. Engg)

Time: 3 hours Max. Marks: 70

*Note: 1. Question paper consists of two parts (**Part-A** and **Part-B**)*
*2. All the questions in **Part-A** is Compulsory*
*3. Answer **ONE** Question from **Each Unit** in **Part-B***

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PART –A (20 Marks)

1.	a)	Why was Della sobbing and sniffling?	[2M]
	b)	What are the different things carried by the Brook?	[2M]
	c)	What are Musk's early business ventures?	[2M]
	d)	What expectations did the children have from their uncle's toys?	[2M]
	e)	Frame sentences with different compound words.	[2M]
	f)	Write the importance of Punctuation.	[2M]
	g)	How sentences are arranged in sequencing?	[2M]
	h)	What are the steps to be followed in summarizing?	[2M]
	i)	Where do you use present continuous tense?	[2M]
	j)	Write the difference between Resume and Curriculum Vitae.	[2M]

PART – B (50 MARKS)

UNIT-I

2.	a)	Why did Jim say their presents were too nice to use just at present?	[5M]
	b)	**Fill in the blanks with articles.** i) Where are ---- Canary Islands? ii) Children like ---- sweets. iii) How far is --- Sun away from --- earth? iv) --- Duck is --- bird.	[5M]

(OR)

3	a)	What moral lessons are stressed in 'The Gift of Magi'?	[5M]
	b)	**Write Antonyms for the following** i) Cheap ii) Capable iii) vertical iv) exterior v) decent	[5M]

UNIT-II

4.	a)	Discuss the effectiveness of the first-person narration used by Lord Tennyson in the poem **The Brook**.	[5M]
	b)	Write a paragraph about your Garden. Use descriptive phrases to make the reader feel as if they are walking through your garden.	[5M]

(OR)

5.	a)	Present the debating situation among three friends about the effect of social media in education.	[5M]
	b)	Frame five Wh questions.	[5M]

UNIT-III

6.	a)	Explain how Elon Musk measured the success. What are the ongoing effects of the outcome meant for him?	[5M]
	b)	**Fill in the blanks with the correct verb forms.** i) Sita never-----(tell) lies she really ---- (hate) them. ii) Suman ---- (live) in Mumbai for 10 years. iii) My sister is a writer. She-------(write) novels. iv) How have you been----? (do)	[5M]
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(OR)

7. a) How have Tesla and the Hyper loop radically revolutionized transportation? [5M]

   b) **Mark the correct collocation.** [5M]

i) Honest apology	Sincere apology
ii) Gossip writer	Gossip columnist
iii) Press an icon	Click on an icon
iv) Have sympathy for	Pay sympathy to
v) Speak fluent English	Speak easy English

UNIT-IV

8. a) Describe the significance of Harvey's failed experiment with the peace toys. [5M]

   b) Draw Bar Diagram and Explain how it conveys information. [5M]

(OR)

9. a) Explain how education plays a vital role in shaping children's perspectives regarding toys. [5M]

   b) Write a letter to the Health officer of your city expressing concern about the unhygienic conditions in public places. [5M]

UNIT-V

10. a) How does intrapersonal communication help to build strong Interpersonal relationships? [5M]

    b) Write an essay on Time and Tide wait for none. [5M]

(OR)

11. a) How intrapersonal communication is practiced in India, North America, and Australia? [5M]

    b) **Edit the following passage.** [5M]

Our earth have been blessed with a large variety of resource like water, forests or minerals. But only humanbeings can discovers, develop or convert this resources into wealth. Thus the Greater resorce of an earth is the human being. Any country who want to progresss must take care of it's natural As well as Human resources.

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Code No: **R231101** **R23** **SET - 4**

I B. Tech I Semester Regular Examinations, Jauary-2024
COMMUNICATIVE ENGLISH

(Common to EEE, CSE, Chemical E, FT, PT, Ph. Engg)

Time: 3 hours Max. Marks: 70

*Note: 1. Question paper consists of two parts (**Part-A** and **Part-B**)*
*2. All the questions in **Part-A** is Compulsory*
*3. Answer **ONE** Question from **Each Unit** in **Part-B***

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PART –A (20 Marks)

1.	a)	What did Della do with her hair and why?	[2M]
	b)	What is the speed of the Brook as it moves from the hills and bridges?	[2M]
	c)	Give Examples of Subject -Verb agreement.	[2M]
	d)	What sort of Peace toys Harvey brings for Eric and Bertie. What do these toys represent?	[2M]
	e)	How does a cultivating Intrapersonal communication skill contribute to leadership development?	[2M]
	f)	Give Examples of the usage of Root Words.	[2M]
	g)	Write the difference between the Content word and the Function word.	[2M]
	h)	How information is represented graphically? Give examples.	[2M]
	i)	What is jargon? Give examples of scientific jargon.	[2M]
	j)	What are the four types of Essays?	[2M]

PART – B (50 MARKS)

UNIT-I

2.	a)	What was Jim's reaction when he returned home?	[5M]
	b)	**Punctuate the following passage.** Jargon refers to terminology that is specific to an industry trade academic discipline profession or group of words or phrases that require specialized knowledge to be understood fall under category of jargon fields that use jargon include military music economics law computing and so on	[5M]

(OR)

3	a)	Attempt a justification of the story 'The Gift of the Magi' as an example of comic irony.	[5M]
	b)	**Provide the suffix for the following.** i) Overlook ii) Child iii) Method iv)Fool v)Tire	[5M]

UNIT-II

4.	a)	'I make the netted sunbeam dance'. What image does the poet want to create in the mind of the reader?	[5M]
	b)	**Fill in the blanks with Homonyms.** i) Lord Williams hardly ever left his (manor, manner) ii) I keep walking (strait, straight) until you reach Peter's road. iii) That lion has a beautiful (main, mane) iv) Don't iron your clothes on the table: Use an ironing (board, bored) v) All the leaders claimed that they wanted(piece, peace)	[5M]

(OR)

5.	a)	What does the poet want to convey through the poem 'The Brook'.	[5M]
	b)	**Jumbled sentences. Arrange them in order.** i) Roughage helps the body to get rid of undigested food. ii) They improve appetite and increase the body's ability to fight diseases. iii) Fresh fruits and vegetables arethe sources of vitamins and minerals. iv) Vitamins keep our body fit. v) Minerals help in the growth of the body.	[5M]
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UNIT-III

6. a) What are Elon Musk's contributions to the field of Science and Technology? [5M]

   b) **Paraphrase the following passage.** [5M]

John could not find the butter in his fridge. He went to buy some from the store. On coming back, he saw his cat sitting on the floor, smacking its lips. There was some yellow stuff smeared all around its face. Thus, John solved the mystery of the missing butter.

(OR)

7. a) Explain Musk's X. Com and PayPal. [5M]

   b) **Reading Comprehension.** [5M]

The story talks about a bird who works hard and is punctual in its daily routine.
There was once a bird who woke up early every morning to catch worms. Other birds would see her and laugh, saying that she was wasting her time. But the bird didn't care. She knew that if she kept working hard, she would eventually be rewarded. Sure enough one day, the bird caught a worm so big. It could barely fit in her mouth. The other birds were shocked and jealous, but the bird just smiled. She knew that her early mornings had paid off.

Answer the following questions.

i) What are the characteristics of the bird in the story?

ii) Why did the bird think that she would get rewarded?

iii) How did the other birds react to her?

iv) How did the bird get rewarded?

v) What did you learn by reading this story?

UNIT-IV

8. a) Discuss the balance between promoting peace and acknowledging children's innate instincts. [5M]

   b) **Change the following sentences.** [5M]

i) What a beautiful weather! Leela said. (Change into indirect speech)

ii) Bunny said that it was time to leave for the meeting (Change into direct speech)

iii) Shreya says, "The conference is in August."(Change into indirect speech)

iv) Give him some bread. (Change into passive voice)

v) Novels will be written by Nishika. (Change into active voice)

(OR)

9. a) How does the boy's transformation of the peace toys into violent scenarios reflect their exposure to real-world conflicts? [5M]

   b) Write a letter to the Chief Minister expressing concern about the rising unemployment rate in your state. [5M]

UNIT-V

10. a) What impact does Intrapersonal communication have on your personal growth? [5M]

    b) Write an essay on **Pollution due to Urbanization**. [5M]

(OR)

11. a) What are the benefits of developing strong intrapersonal communication skills? [5M]

    b) **Correct the following sentences.** [5M]

i) If I will visit London, I will meet you.

ii) She is married with an Engineer.

iii) Every students is intelligent in the class.

iv) Its Sunday morning.

v) Parents work for there children.

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