ANNEXURE -I   
COMPUTER SCIENCE AND ENGINEERING   
1. Digital Electronics : Number systems -Logic Gates, Boolean Algebraand basic   
Combinational circuits -Flip-Flops -Counters and registers -Additional Combinational   
Circuits.   
   
2. Software Engineering : Basics of Software Engineering Designs & Life Cycle   
Models -Software Project Management -Requirement Analysis & Specifications -  
Software Design, Coding -Software testing, Debugging, Reliability, Quality   
Management &Maintenance.   
   
3. Computer Organisat ion and Microprocessors : CPU Organization -Information   
representation and Arithmetic Operations -Memory Organization -I/O Organization -  
Fundamentals of 8086 and Advanced Processors.   
   
4. Data structures through C : Introduction to Data structures, Searching and Sor ting-  
Linked Storage Representation -Linked Lists -Linear Data Structures -Stacks -Linear   
Data Structures -Queues -Non-Linear Data Structures -Trees.   
   
5. Computer Networks : Introduction to Networks -LAN components, Devices, tools,   
and Network Topologies -Network Addressing and sub -netting -Networks protocols   
and management -Basic Network administration.   
   
6. Operating Systems : Introduction to Operating system -Process management -  
Synchronization & Deadlocks -Memory management -Disk scheduling and File   
management   
   
7. DBMS : Concepts of DBMS & RDBMS -Concepts of SQL -Basics of PL/ SQL -  
Advanced PL/SQL -Concepts of NoSQL & MongoDB.   
   
8. Object oriented Programming through C++ : Object oriented programming   
concepts & Introduction to C++ -Functions, Arrays, Pointers &Referen ces-  
Constructors, Destructors & Operator Overloading -Inheritance& Virtual functions -  
C++ I/O & Templates.   
   
9. Java Programming : Basics of java and overloading -Concepts of inheritance,   
overriding, Interfaces and Packages -I/O Streams and Collections -Exception ha ndling   
and Multithreaded Programming -Applets, AWT and Event Handling.

10. Web Technologies: Principles of Web Designing and HTML Introduction -  
Understand various HTML tags and usage of style sheets -Understand XML and Client   
side scripting using Java Script -JavaScript Ajax and J Query -Web servers and Server   
side scripting using PHP.

ANNEXURE -II   
Number of questions to be set unit wise (Total 100)   
COMPUTERSCIENCEANDENGINEERING   
   
   
UnitNo Topic Weightage\_Marks   
1 Digital Electronics 08   
2 Software Engineering 08   
3 Computer Organization and Microprocessors 12   
4 Data Structures through C 10   
5 Computer Networks 12   
6 Operating Systems 12   
7 DBMS 10   
8 Object Oriented Programming through C++ 10   
9 Java Programming 10   
10 Web Technologies 08

ANNEXURE - III   
MODELQUESTIONSFOR COMPUTERSCIENCEANDENGINEERING   
   
1. In a circular linked list, the in sertionofa record involves modification of   
1. 3pointers   
2. 4pointers   
3. 2pointers   
4. Nopointers   
   
2. Which of the following layer of OSI reference model deals with end to end   
communication?   
1. Presentation layer   
2. Session layer   
3. Network layer   
4. Transport layer

ANNEXURE - I   
ENGINEERING MATHEMATICS   
(Common for all branches of Diploma in Engineering )   
Unit -I:   
 Matrices :Matrices of 3rd order: Types of matrices -Algebra of matrices -Transpose of a matrix -   
Symmetric, skew symmetric matrices -Minor, cofactor of an element -Determinant of a square   
matrix -Properties -Laplace’s expansion -singular and non singular matrices -Adjoint and   
multiplicative inverse of a square matrix -System of linear equations in 3 variables -Solutions by   
Crammer’s rule, Matrix inversion method .   
Partial Fractions: Resolving a given rational function into partial fractions.   
   
Unit –II:   
Trigonometry: Properties of Trigonometric functions – Ratios of Compound angles, multiple   
angles, sub multiple angles – Transformations of Products into sum or difference and vice   
versa – Simple trigonometric equations – Properties of triangles – Inverse Trigonometric   
functions.   
Complex Numbers: Modulus and conjugate, arithmetic operations on complex number —   
Modulus -Amplitude form (Polar form) -Euler form (exponential form) -Properties - De Movire’s   
Theorem and its applications.   
   
Unit – III : Analytical Geometry   
Circles -Equation given center and radius -given ends of diameter -General equation -finding   
center and radius. Standard forms of equations of Parabola, Ellipse and Hyperbola – simple   
properties.   
   
Unit – IV : Differentiation and its Applications   
Functions and limits – Standard limits – Differentiation from the First Principles –   
Differentiation of sum, product, quotient of functions, function of function, trigonometric,   
inverse trigonometric, exponential, logarithmic, Hyperbolic functions, implicit, explicit and   
parametric functions – Derivative of a function with respect to another function -Second order   
derivatives –Geometrical applic ations of the derivative (angle between curves, tangent and   
normal) – Increasing and decreasing functions – Maxima and Minima (single variable   
functions) using second order derivative only – Derivative as rate measure -Errors and   
approximations - Partial Differentiation – Partial derivatives up to second order – Euler’s   
theorem.   
   
Unit – V : Integration and Its Applications   
Indefinite Integral – Standard forms – Integration by decomposition of the integrand of   
trigonometric, algebraic, exponential, logarithmic and Hyperbolic functions – Integration by   
substitution – Integration of reducible and irreducible quadratic factors – Integration by parts   
– Definite Integrals and properties, Definite Integral as the limi t of a sum – Application of   
Integration to find areas under plane curves and volumes of Solids of revolution – Mean and   
RMS value.

Unit – VI: Differential Equations   
Definition of a differential equation -order and degree of a differential equation - formation of   
differential equations -solution of differential equation of the type first order, first degree,   
variable -separable, homogeneous equations, exact, linear differential equation of the form   
dy/dx + Py = Q, Bernoulli’s equation, nth order linear differential equation with constant   
   
coefficients both homogeneous and non homogeneous and finding the Particular Integrals for   
the functions , , Sin ax, Cos ax.

ANNEXURE - II   
FOR DIPLOMA HOLDERS   
MATHEMATICS (Common Syllabus)   
   
Number of Questions to be Set Unit Wise (Total 50)   
   
   
UNIT NO TOPICS MARKS   
I Matrices 05   
Partial Fractions 02   
II Trigonometry 10   
Complex numbers 02   
III Analytical geometry 06   
IV Differentiation and its applications 10   
V Integration and its applications 08   
VI Differential equations 07   
TOTAL 50

ANNEXURE - III   
FOR DIPLOMA HOLDERS   
MODEL QUESTIONS FOR MATHEMATICS   
   
1. The maximum value of 5+8Cos +6Sin is   
1) 25   
2) 19   
3) 15   
4) 5   
   
2. The value of Cos100Cos500Cos700 is   
1)   
 2)   
 3)   
4)   
   
3. If Sec2 then the general solution   
1) 2nπ ±   
2) nπ ±   
3) nπ ±   
4) 2nπ ±   
4. The eccentricity of the ellipse 3x2 +2y2 =6 is   
1)   
2)   
3)   
4)   
   
5.   
   
1)   
2) e-2   
   
3)   
4) e-1

ANNEXURE - I   
PHYSICS   
(Common Syllabus for all Diploma Holders in Engineering)   
   
   
Unit -1:   
Units and dimensions: Physical quantity -fundamental and derived physical quantities -units -  
fundamental and derived units -SI units -multiples and sub-multiples in SI units -advantages of   
SI units -dimensions and dimensional formulae -dimensionless quantities - applications and   
limitations of dimensional analysis -problems.   
   
Unit -2: Elements of vectors:   
Scalar and vector quantities -examples –graphical representation of a vecto r-types of vectors -   
addition and subtraction of vectors -triangle law -parallelogram law and its cases -polygon law -   
resolution of a vector -unit vectors (i, j, k) -dot product and cross product of two vectors -   
characteristics of dot and cross products -examples -problems.   
   
Unit -3: Kinematics and Friction   
Equations of motion -acceleration due to gravity -equations of motion under gravity -   
expressions for maximum height, time of ascent, time of descent, time of flight, velocity on   
reaching the point of projection -motion of a body projected from the top of a tower -projectile   
motion -examples -horizontal and oblique projections -expressions for maximum height, time   
of ascent, time of flight, horizontal range, magnitude and direction of resultant velocity -   
problems.   
Friction -normal reaction -laws of friction -coefficients of friction -angle of friction -methods of   
reducing friction -advantages and disadvantages of friction -motion of a body over a smooth   
inclined plane and a rough inclined plane –problems.   
   
Unit -4: Work, Power and Energy   
Work, power and energy -definitions and units -potential and kinetic energies -examples and   
expressions -law of conservation of energy -problems .   
   
Unit -5: Simple harmonic motion and acoustics   
Definition -conditions of SHM -examples of SHM -expressions for displacement, velocity,   
acceleration, time period, frequency and phase of SHM -time period of a simple pendulum -   
seconds pendulum -problems. Sound -musical sound and noise -noise pollution -Effects and   
methods of control of Noise Pollution -Beats and echoe -problems -Doppler effect – Explanation,   
cases and Applications Acoustics of buildings -Reverberation -Sabines’ formula - characteristics   
of a good building -problems.

Unit:6: Heat and Thermodynamics   
Expansion of gases -Boyle’s law-Absolute scale of temperature -charle’s laws-Ideal gas   
equation -Universal gas constant and its value -SI Units -problems -external work done by a gas-  
isothermal process -adiabatic process -first law of thermodynamics and its applications to   
isothermal proces s and adiabatic process -two specific heats of a gas -relation between Cp and   
Cv-problems -second law of thermodynamics and its applications.   
   
Unit:7 Modern Physics   
Photoelectric effect – explanation and its laws-applications of photoelectric effect (photocell )   
– critical angle and total internal reflection – optical fibers - principle, working , types and   
applications -concept of super conductivity – its properties and applications.

ANNEXURE - II   
Number of Questions to be Set Unit Wise (TOTAL 25)   
   
   
UNIT NO TOPICS MARKS   
I Units and Dimensions 02   
II Elements of Vectors 02   
III Kinematics and Friction 06   
IV Work, Power and Energy 03   
V Simple Harmonic Motion and Acoustics 05   
VI Heat and Thermodynamics 05   
VII Modern Physics 02   
Total 25

ANNEXURE - III   
MODEL QUESTIONS FOR PHYSICS   
   
1. If young’s modulus ‘Y’, surface tension ‘S’ and velocity ‘V’ are chosen as fundamental   
quantities, the dimensional formula for force is   
2. Y-5V-4S6   
3. Y-3V5S5   
4. Y-5V-4S5   
5. Y-3V-4S6   
2. A ballon moves up with constant velocity 10m/s. An object is dropped from it when it   
is at a height of 100 m above the ground. The distance between the object and the ballon   
after 5 sec is (g=10m/s2)   
1. 120 m   
2. 125 m   
3. 100 m   
4. 150 m   
3. The time period of an oscillating simple pendulum is ‘T’. If its length is increased by   
5 cm then the time period is ‘T 1’ and the time period is ‘T 2’ if the length is reduced by   
5 cm. The relationship among T, T 1, T2   
1. T2 = T12+T22   
2. T2/2 = T 12+T22   
3. 2T2 = T 12+T22   
4. 3T2 = T 12+T22   
4. A gas is heated through 4 K in a closed vessel. If its pressure is increased by 0.8%, the   
initial temperature of the gas is   
1. 227 K   
2. 454 K   
3. 454 oC   
4. 227 oC   
5. If light travels through two media with velocities 2.5 x 108 m/s and 2 x 108 m/s   
respectively, the critical angle for the combination of the two media is   
1. Sin-1(4/5)   
2. Sin-1(3/5)   
3. Sin-1(2/5)   
4. Sin-1(1/5)

ANNEXURE - I   
CHEMISTRY   
(Common for all branches of Diploma in Engineering )   
   
   
1. Atomic Structure: Introduction -Fundamental particles – Bohr’s theory – Quantum   
numbers –– Aufbau principle – Hund’s rule – Pauli’s exclusion principle - Electronic   
configurations of elements up to atomic number 20, shapes of s,p,d orbitals.   
   
2. Chemical Bonding:   
 Introduction – types of chemical bonds – Ionic bond taking example of NaCl and MgO –  
characteristics of ionic compounds and covalent bond taking example H 2, O2 ,N2, HCl   
characteristics of covalent compounds.   
   
3. Solutions :   
Introduction solution classification of solutions, solute, solvent, concentration, mole   
concept – Molarity, –Normality, equivalent weight using acids, bases and salts, numerical   
problems on Molarit y and Normality.   
   
4. Acids and Bases :   
Introduction – theories of acids and bases – Arrhinus, Bronsted –Lowry theory – Lewis   
acid base theory – Ionic product of water - PH and related numerical problems – buffers   
solutions – Applications.   
   
5. Electrochemistry :   
Conductors, insulators, electrolytes – electrolysis –Faraday’s laws of electrolysis - numerical   
problems – Galvanic cell – standard electrode potential – electro chemical series –emf and   
numerical problems on emf of a cell.   
   
6. Water Technology :   
Introduction –soft and hard water – causes of hardness – types of hardness –disadvantages   
of hard water – degree of Hardness, units and its relations – softening methods – per mutit   
process – ion exchange process – qualities of drinking water – municipal treatment of water   
for drinking purpose.   
   
7. Corrosion :   
Introduction - factors influencing corrosion - electrochemical theory of corrosion - composition   
cell, stress cell and concentration cells – rusting of iron and its mechanism – prevention of   
corrosion by a) coating methods, b) cathodic protection (sacrificial and impressive voltage   
methods).

8. Polymers :   
Introduction – polymerisation – types of polymerisation – addition, condensation   
and co - polymerisation with examples – plastics – types of plastics – advantages of   
plastics over traditional materials – Disadvantages of using plastics ,thermo plastics   
and thermo stetting plastics – differences between thermo plastics and t hermo   
stetting plastics -preparation and uses of the following plastics : 1. Polythene 2. PVC   
3. Teflon 4. Polystyrene 5. Urea formaldehyde –Rubber – natural rubber –   
processing from latex –Vulcanization – Elastomers – Buna -s, Neoprene rubber and   
their uses.   
   
9. Fuels :   
Definition and classification of fuels based on physical state and occurrence – characteristics   
of good fuel - Extraction and Refining of petroleum - composition and uses of gaseous fuels.   
A) water gas b) producer gas c) natural gas d) coal ga s e) bio gas f) acetylene   
   
10. Environmental chemistry   
Introduction – environment –understand the terms lithosphere, hydrosphere, atmosphere bio   
sphere, biotic component, energy component pollutant, receptor, sink, particulate, DO, BOD,   
Threshold limit value, COD - Air pollution - causes -Effects – acid rain, green house effect –  
ozone depletion – control of Air pollution – Water pollution – causes – effects – control   
measures.

ANNEXURE - II   
Number of Questions to be Set Unit Wise (TOTAL 25)   
   
UNIT No Topic Marks   
1. Atomic Structure 3   
2. Chemical Bonding 2   
3. Solutions 3   
4. Acids and Bases 2   
5. Electrochemistry 4   
6. Water Technology 3   
7. Corrosion 2   
8. Polymers 3   
9. Fuels 1   
10. Environmental Chemistry 2   
Total 25

ANNEXURE - III   
MODEL QUESTIONS FOR CHEMISTRY   
   
1. The normality of oxalic acid solution is found to be 0.05N. How many grams of   
oxalic acid is present in 100 ml of solution.   
1) 1.26   
2) 12.6   
3) 126   
4) 0.126   
   
2. Which of the following is responsible for temporary hardness of water   
1) Ca CO 3   
2) Ca Cl2   
3) Ca SO 4   
4) Ca (HCO 3)2   
   
3. The monomer of Rubber is----   
1) Isoprene   
2) Propene   
3) Polyisoprene   
4) Bakelite   
   
4. Which one of the following is responsible for Global Warming   
1) Particulate   
2) Carbon dioxide   
3) Hydrogen sulphide   
4) Nitrous Oxide