1. KG English

(1). Letters – A B C D ....
(2). Alphabets and Basic Words
(3). Words – Adjectives
(4). Words – Animals
(5). Words – Places
(6). Words – Body
(7). Words – Clothes
(8). Words – Colors
(9). Words – Verbs
(10). Words – Family
(11). Words – Food
(12). Words – Fruits
(13). Words – HOUSE
(14). Words – Jobs
(15). Words – Fun
(16). Words – Music Instruments
(17). Words – Nature
(18). Words – Numbers
(19). Words – People
(20). Words – School Things
(21). Words – Sports
(22). Words – TECHNOLOGY
(23). Words – Transport
(24). Words – Vegetables

2. KG Maths

(1). Numbers – 1 to 10
(2). Numbers – 11 to 20
(3). Number Names – 1 to 10
(4). Number Names – 11 to 20
(5). Shapes
(6). ADD or PUT TOGETHER
(7). Addition Practice
(8). SUBTRACTION or DIFFERENCE or REMOVE or TAKE AWAY
(9). SUBTRACTION PRACTICE

3. KG Spelling Bee

(1). KG English Spelling Bee Practice

4. Grade 1 Maths

(1). Numbers – 1 to 10
(2). Numbers – 11 to 20
(3). Number Names – 1 to 10
(4). Number Names – 11 to 20
(5). Shapes
(6). ADD or PUT TOGETHER
(7). Addition Practice
(8). SUBTRACTION or DIFFERENCE or REMOVE or TAKE AWAY
(9). SUBTRACTION PRACTICE
(10). Measuring Length – Inch and Centimeter

(11). Measuring Length – Inches
(12). Measuring Length – Centimeters
(13). Time Clock
(14). Skip Counting – 2 to 10
(15). Place Value – Ones, Tens

5. Grade 1 Hindi
(1). Hindi Alphabets – अ to अ:
(2). Hindi Alphabets – क to ज्ञ
(3). All Alphabets – अ to ज्ञ

6. Grade 1 Spelling Bee
(1). 1st Grade English Spelling Bee Practice

7. Grade 2 English
(1). Question Words
(2). Pronouns
(3). Adjectives

8. Grade 2 Maths
(1). Addition Practice
(2). Subtraction Practice
(3). Repeated Addition
(4). Multiplication Practice
(5). Skip Counting – 2–10 & 15, 20
(6). Place Value – Ones, Tens, Hundreds, Thousands, Ten Thousands

9. Grade 2 Spelling Bee
(1). 2nd Grade English Spelling Bee Practice

10. Grade 3 English
(1). To Be
(2). "Have" Expressions
(3). Early Writing Topics

11. Grade 3 Maths
(1). Multiplication Practice

12. Grade 3 Spelling Bee
(1). 3rd Grade English Spelling Bee Practice

13. Grade 4 English
(1). The Present Simple
(2). There Is – There Are
(3). Possessive 'S
(4). Can
(5). Some and Any
(6). Capital Letters
(7). Plurals
(8). Prepositions – Introduction
(9). Articles
(10). Writing Topics

14. Grade 4 Spelling Bee
(1). 4th Grade English Spelling Bee Practice

15. Grade 5 English
(1). Simple Verb Patterns
(2). Past Simple "To Be"

(3). Past Simple
(4). Whose
(5). Could
(6). Spelling
(7). More on Prepositions
(8). Quantifiers
(9). 'For', 'Since' and 'Ago'
(10). 'Will' or 'Going To'
(11). "Have To" and "Must"
(12). 'Have' and 'Have Got'
(13). Question Tags
(14). -ing And -ed Adjectives
(15). Enough
(16). ENGLISH ESSAY TOPICS

16. Grade 5 Maths
(1). Complex Shapes

17. Grade 5 Hindi
(1). भोला-भाला

18. Grade 5 Spelling Bee
(1). 5th Grade English Spelling Bee Practice

19. Grade 6 English
(1). Present Continuous
(2). Comparatives and Superlatives
(3). Adverbs
(4). 'Going To' and Present Continuous for Future
(5). Prepositions Of Time
(6). Present Simple For Future
(7). Contractions
(8). Past Continuous Structure
(9). Past Continuous Use
(10). Zero Conditional
(11). First Conditional
(12). Modal Verbs
(13). 'Like' as Verb and Preposition
(14). Compound Nouns
(15). 'So' and 'Such'
(16). Needn't
(17). Subject And Object Questions
(18). ENGLISH ESSAY TOPICS

20. Grade 6 Maths
(1). Comparing Numbers
(2). Large Numbers & Number systems
(3). Estimation
(4). Using Brackets
(5). Roman Numerals
(6). Predecessor and successor
(7). Whole Numbers
(8). Properties of Whole Numbers
(9). Factors and Multiples

(10). Sieve of Eratosthenes
(11). Even and odd numbers
(12). Tests for Divisibility of Numbers
(13). Common Factors and Common Multiples
(14). Some More Divisibility Rules
(15). Prime Factorization
(16). Highest Common Factor
(17). Lowest Common Multiple
(18). Some Problems on HCF and LCM
(19). Geometry Basics
(20). Curves
(21). Polygons
(22). Angles
(23). Triangles
(24). Quadrilaterals
(25). Circles
(26). Measuring Line Segments
(27). Angles – Right and Straight
(28). Angles – Acute, Obtuse and Reflex
(29). Measuring Angles
(30). Perpendicular Lines
(31). Classification of Triangles
(32). Quadrilaterals
(33). Polygons
(34). Three Dimensional Shapes
(35). Faces, edges and vertices
(36). Successor and Predecessor
(37). Integers
(38). Additon of Integers
(39). A Fraction
(40). Fraction on the Number Line
(41). Proper Fractions
(42). Improper and Mixed Fractions
(43). Equivalent Fractions
(44). Simplest Form of a Fraction
(45). Like Fractions
(46). Comparing Fractions
(47). Addition and Subtraction of Fractions
(48). Tenths
(49). Hundredths
(50). Fractions as decimals
(51). Decimals as fractions
(52). Comparing Decimals
(53). Using Decimals
(54). Addition of Numbers with Decimals
(55). Subtraction of Decimals
(56). Recording & Organizing Data
(57). Pictograph
(58). A Bar Graph
(59). Perimeter

(60). Perimeter of regular shapes
(61). Area
(62). Algebra
(63). Use of Variables in Common Rules
(64). Expressions with Variables
(65). What is an Equation?
(66). Solution of an Equation
(67). Ratio
(68). Proportion
(69). Unitary Method
(70). Symmetry
(71). Figures with Multiple Lines of Symmetry
(72). Reflection and Symmetry
(73). Tools of Geometry
(74). The Circle
(75). A Line Segment
(76). Perpendiculars
(77). The perpendicular bisector of a line segment
(78). Angles

21. Grade 6 Science

(1). Food
(2). FOOD MATERIALS AND SOURCES
(3). PLANT PARTS AND ANIMAL PRODUCTS AS FOOD
(4). WHAT DO ANIMALS EAT?
(5). Components of Food
(6). WHAT DO DIFFERENT FOOD ITEMS CONTAIN?
(7). WHAT DO VARIOUS NUTRIENTS DO FOR OUR BODY?
(8). BALANCED DIET
(9). DEFICIENCY DISEASES
(10). VARIETY IN FABRICS
(11). Fiber
(12). SOME PLANT FIBERS
(13). SPINNING COTTON YARN
(14). YARN TO FABRIC
(15). HISTORY OF CLOTHING MATERIAL
(16). Sorting Materials into Groups
(17). PROPERTIES of MATERIALS
(18). METHODS OF SEPARATION – Hand Picking
(19). METHODS OF SEPARATION – Threshing
(20). METHODS OF SEPARATION – Winnowing
(21). METHODS OF SEPARATION – Sieving
(22). METHODS OF SEPARATION – Sedimentation, Decantation and Filtration
(23). METHODS OF SEPARATION – Evaporation
(24). METHODS OF SEPARATION – Use of more than one method of separation
(25). Saturation
(26). Changes Around us

(27). HERBS, SHRUBS AND TREES
(28). STEM
(29). LEAF
(30). ROOT
(31). FLOWER
(32). HUMAN BODY AND IT'S MOVEMENTS
(33). Joints
(34). Muscles
(35). GAIT OF ANIMALS
(36). The Living Organisms and Their Surroundings
(37). Deserts
(38). Mountain regions
(39). Grasslands
(40). Oceans
(41). Ponds and lakes
(42). Characteristics common to all Living things
(43). STORY OF TRANSPORT
(44). DISTANCE
(45). STANDARD UNITS OF MEASUREMENTS
(46). CORRECT MEASUREMENT OF LENGTH
(47). MEASURING THE LENGTH OF A CURVED LINE
(48). TYPES OF MOTION
(49). Light, Shadows and Objects
(50). MIRRORS AND REFLECTIONS
(51). ELECTRIC CELL
(52). A BULB CONNECTED TO AN ELECTRIC CELL
(53). ELECTRIC SWITCH
(54). ELECTRIC CONDUCTORS AND INSULATORS
(55). Magnets
(56). MAGNETIC AND NON-MAGNETIC MATERIALS
(57). MAKE YOUR OWN MAGNET
(58). ATTRACTION AND REPULSION BETWEEN MAGNETS
(59). Water
(60). WATER CYCLE
(61). FLOODS
(62). DROUGHT
(63). NEED TO CONSERVE WATER
(64). RAINWATER HARVESTING
(65). Air Around us
(66). AIR COMPOSITION
(67). OXYGEN FOR ANIMALS AND PLANTS IN WATER AND SOIL
(68). OXYGEN IN THE ATMOSPHERE REPLACED
(69). Garbage in, Garbage out
(70). VERMICOMIPOSTING
(71). RECYCLING
(72). Minimizing over use of plastics and deal with garbage

22. Grade 6 Spelling Bee
    (1). 6th Grade English Spelling Bee Practice
23. Grade 7 English
    (1). Present Perfect Structure
    (2). Present Perfect Use
    (3). Present Simple, Past Simple or Present Perfect?
    (4). Introduction To Phrasal Verbs
    (5). Present Perfect Continuous Structure
    (6). Present Perfect Continuous Use
    (7). Second Conditional
    (8). Passive Overview
    (9). Passive Present
    (10). Passive Past
    (11). Get Passive
    (12). Past Perfect Structure
    (13). Past Perfect Use
    (14). 'Make', 'Let' and 'Allow'
    (15). Used To
    (16). Pronunciation of Used
    (17). Past Simple or 'Used To'?
    (18). ENGLISH ESSAY TOPICS
24. Grade 7 Maths
    (1). PROPERTIES OF ADDITION AND SUBTRACTION OF INTEGERS
    (2). Multiplication of INTEGERS
    (3). Properties oF MULTIPLICATION oF INTEGERS
    (4). Division of INTEGERS
    (5). Properties oF Division of INTEGERS
    (6). MULTIPLICATION OF FRACTIONS
    (7). Division of Fractions
    (8). Multiplication of Decimal Numbers
    (9). Division of Decimal Numbers
    (10). Measures of the central tendency
    (11). ARITHMETIC MEAN
    (12). Range
    (13). Mode
    (14). Median
    (15). Simple Equations
    (16). Solving an Equation
    (17). APPLICATIONS OF SIMPLE EQUATIONS TO PRACTICAL SITUATIONS
    (18). RELATED ANGLES
    (19). Pairs of Lines
    (20). Transversal of Parallel Lines
    (21). CHECKING FOR PARALLEL LINES
    (22). Triangle – Introduction
    (23). Medians of A Triangle
    (24). EXTERIOR ANGLE OF A TRIANGLE AND ITS PROPERTY

(25). Angle Sum Property oF A Triangle
(26). Two Special Triangles : EQUILATERAL AND ISOSCELES
(27). Sum of the lengths of Two Sides of A Triangles
(28). RIGHT-ANGLED TRIANGLES AND PYTHAGORAS PROPERTY
(29). Congruence
(30). CRITERIA FOR CONGRUENCE OF TRIANGLES
(31). CONGRUENCE AMONG RIGHT-ANGLED TRIANGLES
(32). Comparing Quantities
(33). EquivaLent Ratios
(34). PERCENTAGE - ANOTHER WAY OF COMPARING QUANTITIES
(35). USE OF PERCENTAGES
(36). PRICES RELATED TO AN ITEM OR BUYING AND SELLING
(37). CHARGE GUVEN ON BORROWED MONEY OR SIMPLE INTEREST
(38). Rational Numbers
(39). RATIONAL NUMBERS IN STANDARD FORM
(40). COMPARISON OF RATIONAL NUMBERS
(41). RATIONAL NUMBERS BETWEEN TWO RATIONAL NUMBERS
(42). OPERATIONS ON RATIONAL NUMBERS
(43). CONSTRUCTION OF A LINE PARALLEL TO A GIVEN LINE, THROUGH A POINT NOT ON THE LINE
(44). CONSTRUCTION OF TRIANGLES
(45). CONSTRUCTING A TRIANGLE WHEN THE LENGTHS OF 1TS THREE SIDES ARE KNOWN (SSS Criterion)
(46). CONSTRUCTING A TRIANGLE WHEN THE LENGTHS OF TWO SIDES AND THE MEASURE OF THE ANGLE BETWEEN THEM ARE KNOWN (SAS Criterion)
(47). CONSTRUCTING A TRIANGLE WHEN THE MEASURES OF TWO OF ITS ANGLES AND THE LENGTH OF THE SIDE INCLUDED BETWEEN THEM IS GIVEN. (ASA CRITERION)
(48). CONSTRUCTING A RIGHT-ANGLED TRIANGLE WHEN THE LENGTH OF ONE LEG AND ITS HYPOTENUSE ARE GIVEN (RHS Criterion)
(49). Perimeter and Area - Square & Rectangle
(50). AREA OF A PARALLELOGRAM
(51). AREA OF A TRIANGLE
(52). Circles
(53). Conversion of Units
(54). Area & Perimeter Applications
(55). Algebraic Expressions - Introduction
(56). TERMS OF AN EXPRESSION
(57). MONOMIALS, BINOMIALS, TRINOMIALS AND POLYNOMIALS
(58). ADDITION AND SUBTRACTION OF ALGEBRAIC

EXPRESSIONS
(59). FINDING THE VALUE OF AN EXPRESSION
(60). USING ALGEBRAIC EXPRESSIONS – FORMULAS AND RULES
(61). Exponents
(62). Laws of Exponents – Multiplying Powers with the Same Base
(63). Laws of Exponents – Dividing Powers with the Same Base
(64). Laws of Exponents – Taking Power of a Power
(65). Laws of Exponents – Multiplying Powers with the Same Exponents
(66). Laws of Exponents – Dividing Powers with the Same Exponents
(67). Laws of Exponents – Numbers with exponent zero
(68). EXAMPLES USING THE LAWS OF EXPONENTS
(69). Decimal Number System
(70). Expressing Large Numbers in the Standard Form
(71). Symmetry – Introduction
(72). Lines of Symmetry for Regular Polygons
(73). Rotational Symmetry
(74). Line Symmetry and Rotational Symmetry
(75). VISUALIZING SOlID SHAPES – PLANE FIGURES AND SOLID SHAPES
(76). Drawing Solids on a Flat Surface
(77). Viewing Different Sections of A Solid

25. Grade 7 Science

(1). Nutrition
(2). NUTRITION IN PLANTS – Photosynthesis
(3). Roles of leaves in Photosynthesis.
(4). Acitivity– To show photosynthesis needs sunlight and that starch is a by product of this process.
(5). Heterotrophic Nutrition in Plants
(6). HETEROTROPHIC PLANTS
(7). Things around us
(8). Physical changes
(9). CHEMICAL CHANGE
(10). Experiment : Formation of new substance using nail (Chemical reaction)
(11). CHANGE DURING CHEMICAL REACTION
(12). WEATHER
(13). MAXIMUM AND MINIMUM TEMPERATURE
(14). HUMIDITY
(15). RAINFALL
(16). CLIMATE – INDIA
(17). ADAPTATION OF ANIMALS TO CLIMATE
(18). ADAPTATION OF ANIMALS IN POLAR REGION

(19). Adaptation in Penguins
(20). Adaptation in birds
(21). ADAPTATION OF ANIMALS IN DESERTS
(22). ADAPTATION OF ANIMALS IN TROPICAL RAINFOREST
(23). Elephants
(24). SOIL
(25). Soil and its importance
(26). SOIL PROFILE
(27). SOIL COMPONENTS
(28). SOIL LAYERS
(29). Soil Particles
(30). TYPES OF SOIL
(31). PROPERTIES OF SOIL
(32). EXPERIMENT – PARTICLES
(33). Properties of soil – Activity
(34). EXPERIMENT – ABSORPTION BY SOIL
(35). SOIL and CROPS
(36). FACTORS AFFECTING SOIL TYPE
(37). SOIL EROSION
(38). Prevention of soil erosion
(39). Respiration in Organisms
(40). Why do living organisms respire
(41). Types of respiration
(42). Process of respiration
(43). Breathing rate
(44). Cellular Respiration
(45). HUMAN RESPIRATORY SYSTEM
(46). Mechanism of Breathing in Humans
(47). ACTIVITY: What do we breathe out ?
(48). Breathing different animals
(49). Respiration in Plants
(50). Transportation of Materials
(51). CIRCULATORY SYSTEM
(52). THE HEART
(53). THE BLOOD VESSELS
(54). BLOOD
(55). FUNCTIONS OF BLOOD
(56). CIRCULATION OF BLOOD
(57). HEART BEAT
(58). KEEPING THE HEART HEALTHY
(59). EXCRETION
(60). Dialysis
(61). TRANSPORT OF SUBSTANCES IN PLANTS
(62). TRANSPORT OF FOOD
(63). TRANSPIRATION
(64). Reproduction in plants
(65). Vegetative Propagation
(66). Vegetative propagation by roots
(67). VEGETATIVE PROPOGATION BY LEAVES

(68). ARTIFICIAL METHODS OF VEGETATIVE PROPAGATION
(69). SEXUAL REPRODUCTION
(70). POLLINATION
(71). DISPERSAL OF FRUITS AND SEEDS
(72). MOTION AND TIME
(73). Measurement of time
(74). Sundial
(75). PENDULUM
(76). UNITS OF TIME
(77). SPEED
(78). UNIFORM AND NON UNIFORM MOTION
(79). DISTANCE TIME GRAPH
(80). LIGHT
(81). WIND, STORMS AND CYCLONES
(82). AIR EXERTS PRESSURE
(83). AIR PRESSURE REDUCES WHEN WIND SPEED INCREASES
(84). Air Pressure reduces when speed increases
(85). GENERATION OF WIND
(86). TYPES OF STORMS
(87). Tornadoes
(88). Cyclones
(89). Destruction caused by cyclones
(90). SAFETY MEASURES
(91). WEATHER INSTRUMENTS
(92). SCARCITY OF WATER
(93). STATES OF WATER
(94). AVAILABILITY OF WATER
(95). OTHER SOURCES OF WATER
(96). SCARCITY OF WATER
(97). EFFECT OF WATER SCARCITY ON PLANTS
(98). MORE REASONS FOR DEPLETION OF WATER TABLE LEVEL
(99). WATER MANAGEMENT

26. Grade 7 Spelling Bee
(1). 7th Grade English Spelling Bee Practice

27. Grade 8 English
(1). Gerund or Infinitive
(2). Relative Pronouns and Relative Clauses
(3). "Can" And "Be Able"
(4). Nouns and Quantifiers
(5). Adjectives and Adverbs
(6). Reflexive Pronouns
(7). ENGLISH ESSAY TOPICS

28. Grade 8 Maths
(1). Rational Numbers
(2). Properties of Rational Numbers
(3). The role of zero (0)

(4). The role of 1
(5). Negative of a number
(6). Reciprocal
(7). Distributivity of multiplication over addition for rational numbers
(8). Representation of Rational Numbers on the Number Line
(9). Rational Numbers between Two Rational Numbers
(10). Linear Equations in One Variable
(11). Solving Equations which have Linear Expressions on one Side and Numbers on the other Side
(12). Applications of Simple Linear Equations
(13). Solving Equations having the Variable on both Sides
(14). Some More Applications
(15). Reducing Equations to Simpler Form
(16). Polygons
(17). Angle sum property
(18). Sum of the Measures of the Exterior Angles of a Polygon
(19). Kinds of Quadrilaterals
(20). Parallelogram
(21). Some Special Parallelograms
(22). Summary of quadrilaterals
(23). Practical Geometry – Quadrilateral
(24). Constructing a Quadrilateral – When four sides and one diagonal are given
(25). Constructing a Quadrilateral – When two diagonals and three sides are given
(26). Constructing a Quadrilateral – When two adjacent sides and three angles are known
(27). Constructing a Quadrilateral – When three sides and two included angles are given
(28). Constructing a Quadrilateral in some Special Cases – Square
(29). Constructing a Quadrilateral in some Special Cases – Rhombus
(30). Data Handling
(31). Organising Data
(32). Grouping Data
(33). Circle Graph or Pie Chart
(34). Chance and Probability
(35). Chance and probability related to real life
(36). Squares
(37). Some More Interesting Patterns of Square Numbers
(38). Finding the Square of a Number
(39). Pythagorean triplets

(40). Square Roots
(41). Finding square root through repeated subtraction
(42). Finding square root through prime factorization
(43). Finding square root by division method
(44). Square Roots of Decimals
(45). Cubes
(46). Some interesting patterns in Cubes
(47). Cube Roots
(48). Cube root of a cube number
(49). Hardy – Ramanujan Number
(50). Comparing Quantities – Ratios and Percentages
(51). Finding the Increase or Decrease Percent
(52). Finding Discounts
(53). Prices Related to Buying and Selling (Profit and Loss)
(54). Sales Tax
(55). Simple Interest
(56). Compound Interest
(57). Formula for Compound Interest
(58). Rate Compounded Annually or Half Yearly
(59). Applications of Compound Interest Formula
(60). Algebraic Expressions and Identities
(61). Addition and Subtraction of Algebraic Expressions
(62). Multiplication of Monomials
(63). Multiplication of Polynomials
(64). What is an Identity?
(65). Applying Identities
(66). Visualizing Solid Shapes
(67). Polyhedrons
(68). Area of Trapezium
(69). Area of a General Quadrilateral
(70). Area of Rhombus
(71). Area of a Polygon
(72). Solid Shapes
(73). Surface Area of Cube, Cuboid and Cylinder
(74). Volume of Cube, Cuboid and Cylinder
(75). Volume and Capacity
(76). Exponents and Powers – Introduction
(77). Laws of Exponents
(78). Use of Exponents to Express Small Numbers in Standard Form
(79). Comparing and Working with very large and very small numbers
(80). Direct Proportion

(81). Inverse Proportion
(82). Factors of Algebraic expressions
(83). Factorization using identities
(84). Division of Algebraic Expressions
(85). Introduction to Graphs
(86). Linear Graphs
(87). Some Applications of Linear Graphs
(88). Numbers in General Form
(89). Games with Numbers – Reversing the digits – two digit number additions
(90). Games with Numbers – Reversing the digits – two digit number subtraction
(91). Games with Numbers – Reversing the digits – three digit number subtraction
(92). Games with Numbers – Forming three-digit numbers with given three-digits
(93). Letters for Digits
(94). Tests of Divisibility

29. Grade 8 Science

(1). CROP PRODUCTION AND MANAGEMENT
(2). Basic Practices of Crop Production
(3). Preparation of Soil
(4). Agricultural Implements
(5). Sowing
(6). Adding Manure and Fertilisers
(7). Irrigation
(8). Protection from Weeds
(9). Harvesting
(10). Produce Storage & Animal Husbandry
(11). MICROORGANISMS : FRIEND AND FOE
(12). Where do Microorganisms Live?
(13). Microorganisms and Us
(14). Harmful Microorganisms
(15). Food Preservation
(16). Nitrogen Fixation
(17). Nitrogen cycle
(18). penicillin discovery
(19). SYNTHETIC FIBERS AND PLASTICS – Introduction
(20). What are Synthetic Fibres?
(21). Types of Synthetic Fibers
(22). Characteristics of Synthetic Fibers
(23). Plastics
(24). Plastics as Materials of Choice
(25). Plastics and the Environment
(26). MATERIALS : METALS AND NON-METALS – Introduction
(27). Chemical properties of Metals and Non-metals
(28). Uses of metals and Non-metals

(29). Coal And Petroleum
(30). Coal
(31). Petroleum
(32). Natural Gas
(33). Some Natural Resources are Limited
(34). What is Combustion?
(35). How do We Control Fire?
(36). Types of Combustion
(37). Structure of Flame
(38). What is a Fuel?
(39). Fuel Efficiency
(40). Deforestation and Its Causes
(41). Consequences of Deforestation
(42). Conservation of Forest and wildlife
(43). Biosphere Reserve
(44). Flora and Fauna
(45). Endemic Species
(46). Wildlife Sanctuary
(47). National Park
(48). Red Data Book
(49). Migration
(50). Recycling of paper
(51). Reforestation
(52). CELL – STRUCTURE AND FUNCTIONS
(53). Organisms show Variety in Cell Number, Shape and Size
(54). Cell Structure and Function
(55). Parts of the Cell
(56). Comparison of Plant and Animal Cells
(57). REPRODUCTION IN ANIMALS
(58). Sexual Reproduction
(59). Fertilization
(60). Development of Embryo
(61). Asexual Reproduction
(62). Story of Dolly the clone
(63). Adolescence and Puberty
(64). Changes at Puberty
(65). Secondary Sexual Characters
(66). Role of Hormones in Initiating Reproductive Function
(67). Reproductive Phase Of Life in Humans
(68). How is the Sex of the Baby Determined Boy or Girl?
(69). Hormones other than Sex Hormones
(70). Role of Hormones in Completing the Life History of Insects and Frogs
(71). Reproductive Health
(72). Force – A Push or a Pull
(73). A Force can Change the State of Motion
(74). State of Motion

(122). Constellations
(123). The Solar System
(124). Meteors and Meteorites
(125). Artificial Satellites
(126). Air Pollution
(127). Case Study: The Taj Mahal
(128). Greenhouse Effect
(129). Water Pollution

30. Grade 8 Spelling Bee

(1). 8th Grade English Spelling Bee Practice

31. Grade 9 English

(1). One Word Or Two?
(2). Third Conditional
(3). Mixed Conditionals
(4). Wishes And Regrets
(5). Reported Speech
(6). Reported Questions
(7). Be Used To
(8). British And American English
(9). Future Continuous
(10). 'The ___ The ____' Comparatives
(11). Despite, Although, etc.
(12). ENGLISH ESSAY TOPICS

32. Grade 9 Maths

(1). Number systems
(2). Locate √ 2 on the number line
(3). Real number and their decimal expansions
(4). Representing real numbers on the Number Line
(5). Operations on Real Numbers
(6). Laws of Exponents for Real Numbers
(7). Polynomials in One Variable
(8). Zeroes of a Polynomial
(9). Polynomial Division
(10). Remainder Theorem
(11). Factorisation of Polynomials
(12). Algebraic Identities
(13). Cartesian System
(14). Cartesian Coordinate system
(15). Plotting a Point in the Plane if its Coordinates are Given
(16). LINEAR EQUATIONS IN TWO VARIABLES
(17). Graph of a Linear Equation in Two Variables
(18). Equations of Lines Parallel to the x-axis and y-axis
(19). History of Geometry
(20). Euclid's Definitions, Axioms and Postulates
(21). Equivalent Versions of Euclid's Fifth

(64). Probability Example
(65). PROOFS IN MATHEMATICS
(66). INTRODUCTION TO MATHEMATICAL MODELLING
(67). The Process of Modelling, its Advantages and Limitations

33. Grade 9 Science

(1). MATTER IN OUR SURROUNDINGS
(2). Advanced states
(3). MATTER AROUND US PURE
(4). Separating the Components of a Mixture
(5). Physical and Chemical Changes
(6). Types of Pure Substances
(7). Laws of Chemical Combination
(8). ATOMS
(9). Molecule
(10). Writing Chemical Formulae
(11). Molecular Mass and Mole Concept
(12). STRUCTURE OF THE ATOM – INTRODUCTION
(13). Structure of an Atom – Various Models
(14). Distribution of Electrons in Different Orbits
(15). Valency
(16). Atomic Number and Mass Number
(17). Isotopes
(18). ISOBARS
(19). THE FUNDAMENTAL UNIT OF LIFE – CELL
(20). PLASMA MEMBRANE OR CELL MEMBRANE
(21). CELL WALL
(22). Nucleus
(23). CYTOPLASM
(24). CELL ORGANELLES
(25). Camillo Golgi
(26). TISSUES
(27). Are Plants and Animals Made of Same Types of Tissues?
(28). Plant Tissues
(29). Animal Tissues
(30). DIVERSITY IN LIVING ORGANISMS – Basis of Classification
(31). Classification and Evolution
(32). The Hierarchy of Classification – Groups
(33). Plantae
(34). Animalia
(35). Carolus Linnaeus
(36). Nomenclature
(37). MOTION
(38). MOTION ALONG A STRAIGHT LINE
(39). UNIFORM MOTION AND NON– UNIFORM MOTION
(40). Measuring the Rate of Motion
(41). SPEED WITH DIRECTION

(42). Rate of Change of Velocity
(43). Graphical Representation of Motion
(44). Equations of Motion by Graphical Method
(45). Uniform Circular Motion
(46). FORCE AND LAWS OF MOTION
(47). Balanced and Unbalanced Forces
(48). First Law of Motion
(49). Galileo Galilei [1564 – 1642]
(50). Inertia and Mass
(51). Newton's Second Law of Motion
(52). Third Law of Motion
(53). Law of Conservation of Momentum
(54). CONSERVATION LAWS
(55). GRAVITATION
(56). UNIVERSAL LAW OF GRAVITATION
(57). Free Fall
(58). CALCULATE THE VALUE OF g
(59). MOTION OF OBJECTS UNDER THE INFLUENCE OF GRAVITATIONAL FORCE OF THE EARTH
(60). Mass & Weight
(61). WEIGHT OF AN OBJECT ON THE MOON
(62). Thrust and Pressure
(63). PRESSURE IN FLUIDS
(64). BUOYANCY
(65). Relative Density
(66). Archimedes
(67). WORK AND ENERGY
(68). SCIENTIFIC CONCEPTION OF WORK
(69). WORK DONE BY A CONSTANT FORCE
(70). Energy
(71). LAW OF CONSERVATION OF ENERGY
(72). Rate of Doing Work
(73). COMMERCIAL UNIT OF ENERGY
(74). James Prescott Joule
(75). SOUND
(76). Propagation of Sound
(77). Reflection of Sound
(78). Range of Hearing
(79). Applications of Ultrasound
(80). SONAR
(81). Structure of Human Ear
(82). WHY Do WE FALL ILL
(83). Health and its Failure
(84). Diseases and its Causes
(85). Peptic ulcers and the Nobel prize
(86). Infectious Diseases
(87). INFECTIOUS DISEASES MEANS OF SPREAD
(88). ORGAN–SPECIFIC AND TISSUE– SPECIFIC MANIFESTATIONS
(89). PRINCIPLES OF TREATMENT

(90). PRINCIPLES OF PREVENTION
(91). NATURAL RESOURCES
(92). The Breath of Life: Air
(93). THE ROLE OF THE ATMOSPHERE IN CLIMATE CONTROL
(94). THE MOVEMENT OF AIR: WINDS
(95). Rain
(96). AIR POLLUTION
(97). Water: A Wonder Liquid
(98). WATER POLLUTION
(99). Mineral Riches in the Soil
(100). Biogeochemical Cycles
(101). THE WATER-CYCLE
(102). THE NITROGEN-CYCLE
(103). THE CARBON-CYCLE
(104). THE OXYGEN-CYCLE
(105). Ozone Layer
(106). IMPROVEMENT IN FOOD RESOURCES - Introduction
(107). Improvement in Crop Yields
(108). CROP VARIETY IMPROVEMENT
(109). CROP PRODUCTION MANAGEMENT
(110). IRRIGATION
(111). CROPPING PATTERNS
(112). CROP PROTECTION MANAGEMENT
(113). STORAGE OF GRAINS
(114). Animal Husbandry

34. Grade 9 Spelling Bee

(1). 9th Grade English Spelling Bee Practice

35. Grade 10 English

(1). Modals Of Deduction
(2). Relative Clauses & Pronouns
(3). The Causative
(4). Inversion
(5). Advanced Quantifiers
(6). Reasons
(7). Purpose & Results
(8). ESSAY WRITING TIPS
(9). ENGLISH ESSAY TOPICS

36. Grade 10 Maths

(1). Real Numbers
(2). Algorithm vs Lemma
(3). Euclid's division algorithm
(4). Irrational Numbers
(5). Theorem : Proof that √ 2 is irrational
(6). Theorem: Prove that √ 3 is irrational
(7). RATIONAL NUMBERS
(8). HCF & LCM Relations
(9). Fundamental Theorem of Arithmetic
(10). Polynomials - Introduction

(11). Zeros of a polynomial
(12). Geometrical Meaning of the Zeroes of a Polynomial
(13). Relationship between Zeroes and Coefficients of a Polynomial
(14). Division Algorithm for Polynomials
(15). PAIR OF LINEAR EQUATIONS IN TWO VARIABLES
(16). Graphical Method of Solution of a Pair of Linear Equations
(17). Algebraic Methods of Solving a Pair of Linear Equations
(18). Equations Reducible to a Pair of Linear Equations in Two Variables
(19). QUADRATIC EQUATIONS – Introduction
(20). Quadratic Equations
(21). Solution of a Quadratic Equation by Factorisation
(22). Solution of a Quadratic Equation
(23). Nature of Roots
(24). ARITHMETIC PROGRESSIONS – Introduction
(25). n th Term of an AP
(26). Sum of First n Terms of an AP
(27). Sum of the first n positive integers
(28). ARITHMETIC MEAN
(29). Similarity of polygons
(30). Similarity of Triangles
(31). Theorem – A line drawn parallel to one side of a triangle intersects the other two sides in distinct points dividing them in the same ratio.
(32). Theorem – A line dividing any two sides of a triangle in the same ratio is parallel to the third side
(33). Criteria for Similarity of Triangles
(34). AAA (Angle–Angle–Angle) criterion of similarity of two triangles
(35). S S S similarity criterion for two triangles
(36). SAS (Side–Angle–Side) similarity criterion for two triangles
(37). Areas of Similar Triangles
(38). Pythagoras Theorem and similarity of triangles
(39). Pythagoras Theorem Proof
(40). Converse of Pythagoras Theorem
(41). RHS Similarity Criterion
(42). COORDINATE GEOMETRY – Introduction
(43). Distance Formula (using coordinates)
(44). Section Formula (using coordinates)
(45). Area of a Triangle (using coordinates)
(46). INTRODUCTION TO TRIGONOMETRY

(47). Trigonometric Ratios
(48). Finding other trigonometric ratios given one ratio
(49). Origin of Trigonometry
(50). Finding Trigonometric Ratios of 45 °
(51). Finding Trigonometric Ratios of 30 ° and 60 °
(52). Finding Trigonometric Ratios of 0 ° and 90 °
(53). Trigonometric Ratios of Some Specific Angles – Summary
(54). Trigonometric Ratios of Complementary Angles
(55). Trigonometric Identities
(56). Heights and Distances
(57). CIRCLES – Introduction
(58). Tangent at any point on a circle is perpendicular to the radius through the point of contact
(59). Number of Tangents from a Point on a Circle
(60). lengths of tangents drawn from an external point to a circle are equal
(61). Division of a Line Segment
(62). constructing a triangle similar to a given triangle whose sides are in a given ratio with the corresponding sides of the given triangle
(63). Construction of Tangents to a Circle from a point
(64). Perimeter and Area of a Circle
(65). Areas of Sector and Segment of a Circle
(66). Areas of Combinations of Plane Figures
(67). Surface Area of a Combination of Solids
(68). Volume of a Combination of Solids
(69). Conversion of Solid from One Shape to Another
(70). Frustum of a Cone
(71). Mean of Grouped Data
(72). Mode of Grouped Data
(73). Median of Grouped Data
(74). Measures of Central Tendency
(75). Graphical Representation of Cumulative Frequency Distribution
(76). Probability – Theoretical Approach
(77). Statements & Hypothesis
(78). Proofs
(79). Negation
(80). Converse of a Statement
(81). proof by contradiction
(82). Mathematical Modelling
(83). Stages in Mathematical Modelling

(84). Why is Mathematical Modelling Important?

37. Grade 10 Science

(1). CHEMICAL REACTIONS & EQUATIONS - Summary
(2). Chemical Reactions
(3). CHEMICAL EQUATIONS
(4). TYPES OF CHEMICAL REACTIONS
(5). THE EFFECT'S OF OXIDATION REACTIONS IN EVERYDAY LIFE
(6). Acids, Bases and Salts - Summary
(7). Acids, Bases - Indicators
(8). UNDERSTANDING THE CHEMICAL PROPERTIES OF ACIDS AND BASES
(9). COMMON PROPERTIES OF ALL ACIDS AND ALL BASES
(10). STRENGTH OF ACID OR BASE SOLUTIONS
(11). ABOUT SALTS
(12). Metals and Non-Metals
(13). Carbon & its Compounds
(14). Simplest Molecule formed
(15). Allotropes of carbon
(16). Versatility of Carbon
(17). Saturated and Unsaturated Carbon Compounds
(18). Hydrocarbons
(19). Functional Groups and Homologous
(20). Nomenclature of Carbon Compounds
(21). CHEMICAL PROPERTIES OF CARBON COMPOUNDS
(22). SOME IMPORTANT CARBON COMPOUNDS - ETHANOL
(23). SOME IMPORTANT CARBON COMPOUNDS - ETHANOIC ACID
(24). SOAPS AND DETERGENTS
(25). Periodic Classification of Elements
(26). Modern Periodic Table
(27). Summary of Life Processes
(28). Life Processes
(29). NUTRITION
(30). Dental caries
(31). RESPIRATION
(32). ATP - Adenosine triphosphate
(33). TRANSPORTATION
(34). Blood pressure
(35). EXCRETION
(36). Artificial kidney - Hemodialysis
(37). Control and Coordination Summary
(38). Control and Coordination
(39). Reproduction in Organisms
(40). SEXUAL REPRODUCTION
(41). Reproduction in Human Beings
(42). Tissue culture

(43). Heredity and Evolution
(44). Sex Determination
(45). EVOLUTION
(46). SPECIATION
(47). EVOLUTION AND CLASSIFICATION
(48). Tracing Evolutionary Relationships
(49). Fossils
(50). Evolution by Stages
(51). EVOLUTION SHOULD NOT BE EQUATED WITH PROGRESS
(52). Human Evolution
(53). Gregor Johann Mendel 1822 – 1884
(54). Charles Robert Darwin 1809 – 1882
(55). Origin of life on earth
(56). How do fossils form layer by layer
(57). Molecular phylogeny
(58). Light – Reflection
(59). Image Formation by Spherical Mirrors
(60). Representation of Images Formed by Spherical Mirrors Using Ray Diagrams
(61). Image Formation by Concave Mirror
(62). Uses of concave mirrors
(63). Image formation by a Convex Mirror
(64). Uses of convex mirrors
(65). Sign Convention for Reflection by Spherical Mirrors
(66). Mirror Formula
(67). Magnification
(68). Mirror example 1
(69). REFRACTION OF LIGHT
(70). Laws of refraction of light
(71). The Refractive Index
(72). Refraction by Spherical Lenses
(73). Image Formation by Lenses
(74). Image Formation in Lenses Using Ray Diagrams
(75). Sign Convention for Spherical Lenses
(76). Lens Formula
(77). Magnification of Lens
(78). Power of a Lens
(79). Optical instruments
(80). Optical Density
(81). Light – advanced understanding of light
(82). Examples of Problem solving with lenses
(83). The human eye
(84). Eyes – Power of Accommodation
(85). DEFECTS OF VISION AND THEIR CORRECTION
(86). REFRACTION OF LIGHT THROUGH A PRISM
(87). DISPERSION OF WHITE LIGHT BY A GLASS PRISM

(88). Rainbow Formation
(89). ATMOSPHERIC REFRACTION
(90). SCATTERING OF LIGHT
(91). DONATING EYES
(92). why do we have two eyes for vision and not just one?
(93). Vision problems
(94). Electricity – Introduction
(95). ELECTRIC CURRENT AND CIRCUIT
(96). ELECTRIC POTENTIAL AND POTENTIAL DIFFERENCE
(97). CIRCUIT DIAGRAM
(98). OHM'S LAW
(99). FACTORS ON WHICH THE RESISTANCE OF A CONDUCTOR DEPENDS
(100). RESISTANCE OF A SYSTEM OF RESISTORS
(101). HEATING EFFECT OF ELECTRIC CURRENT – Joules Law
(102). Practical Applications of Heating Effect of Electric Current
(103). ELECTRIC POWER
(104). why do we pay for electricity?
(105). Flow of charges inside a wire
(106). Magnetic Effects of Electric Current – Summary
(107). Magnetic Effects of Electric Current
(108). MAGNETIC FIELD DUE TO A CURRENT–CARRYING CONDUCTOR
(109). FORCE ON A CURRENT–CARRYING CONDUCTOR IN A MAGNETIC FIELD
(110). ELECTRIC MOTOR
(111). ELECTROMAGNETIC INDUCTION
(112). Galvanometer
(113). ELECTRIC GENERATOR
(114). DOMESTIC ELECTRIC CIRCUITS
(115). Hans Christian Oersted (1777 – 1851)
(116). Michael Faraday 1791 – 1867
(117). Magnetism in medicine
(118). Sources of Energy – Summary
(119). Sources of Energy
(120). Improvements in the Technology for using Conventional Sources of Energy
(121). Wind Energy
(122). ALTERNATIVE OR NON–CONVENTIONAL SOURCES OF ENERGY
(123). Solar Energy
(124). Energy from the Sea
(125). Geothermal Energy
(126). Nuclear Energy
(127). ENVIRONMENTAL CONSEQUENCES

(33). The Principle of Mathematical Induction
(34). COMPLEX NUMBERS - Introduction
(35). Algebra of Complex Numbers
(36). The Modulus and the Conjugate of a Complex Number
(37). Argand Plane and Polar Representation
(38). Polar representation of a complex number
(39). Quadratic Equations
(40). LINEAR INEQUALITIES
(41). Algebraic Solutions of Linear Inequalities in One Variable and their Graphical Representation
(42). Graphical Solution of Linear Inequalities in Two Variables
(43). Solution of System of Linear Inequalities in Two Variables
(44). Fundamental Principle of Counting
(45). Permutations
(46). Factorial notation
(47). Derivation of the formula for nPr
(48). Theorem: The number of permutations of n different objects taken r at a time, where repetition is allowed
(49). Permutations when all the objects are not distinct objects
(50). Combinations
(51). Permutations & Combinations - History
(52). Pascal's triangle
(53). Binomial theorem for any positive integer n
(54). Binomial theorem - Some special cases
(55). Binomial Expansion - General and Middle Terms
(56). SEQUENCES AND SERIES
(57). Series
(58). Arithmetic Progression (A.P.)
(59). Arithmetic mean
(60). Geometric Progression (G. P.)
(61). Relationship Between A.M. and G.M.
(62). Sum to n Terms of Special Series
(63). Slope of a Line
(64). Slope of a line when coordinates of any two points on the line are given
(65). Conditions for parallelism and perpendicularity of lines in terms of their slopes
(66). Angle between two lines
(67). Collinearity of three points
(68). Various Forms of the Equation of a Line
(69). Equation of a Line - Point-slope form
(70). Equation of a Line - Two-point form
(71). Equation of a Line - Slope-intercept form

(72). Equation of a Line – Intercept – form
(73). Equation of a Line – Normal form
(74). General Equation of a Line
(75). Distance of a Point From a Line
(76). Distance between two parallel lines
(77). CONIC SECTIONS
(78). Circle
(79). Parabola
(80). Standard equations of parabola
(81). Parabola – Latus rectum
(82). Ellipse
(83). ellipse – Eccentricity
(84). Standard equations of an ellipse
(85). Ellipse – Latus rectum
(86). Hyperbola
(87). Hyperbola – Eccentricity
(88). Standard equation of Hyperbola
(89). Hyperbola – Latus rectum
(90). Coordinate Axes and Coordinate Planes in Three Dimensional Space
(91). Coordinates of a Point in Space
(92). Distance between Two Points in 3D space
(93). Section Formula
(94). LIMITS
(95). Algebra of limits
(96). Limits of polynomials and rational functions
(97). Theorem : limit (xn – an)/(x – a) as x tends to a
(98). Limits of Trigonometric Functions
(99). Theorem: Inequality relating trigonometric functions
(100). Theorem: Two important trigonometric limits.
(101). Evaluating limits
(102). Derivatives
(103). Algebra of derivative of functions
(104). Theorem: Derivative of f(x) = xn for any positive integer n.
(105). Derivative of polynomials and trigonometric functions
(106). Mathematical reasoning
(107). Mathematical reasoning – Special Words/ Phrases
(108). Mathematical reasoning – Implications
(109). Mathematical reasoning – Validating Statements
(110). Measures of Dispersion
(111). Range
(112). Mean Deviation

(113). Mean deviation for ungrouped data
(114). Mean deviation for grouped data – Discrete frequency distribution
(115). Mean deviation for grouped data – Continuous frequency distribution
(116). Limitations of mean deviation
(117). Variance
(118). Standard Deviation
(119). Analysis of Frequency Distributions
(120). PROBABILITY THEORIES
(121). Random Experiments
(122). Types of events
(123). Algebra of events
(124). Mutually exclusive events
(125). Exhaustive events
(126). Axiomatic Approach to Probability
(127). History of Probability
(128). Binomial Theorem for any Index
(129). Infinite Geometric Series
(130). Exponential Series
(131). Logarithmic Series

42. Grade 11 Biology

(1). DIVERSITY IN THE LIVING WORLD
(2). Diversity in the living world
(3). Nomenclature
(4). Taxonomic Categories
(5). Taxonomical Aids
(6). Ernst Mayr (1904 2004)
(7). BIOLOGICAL CLASSIFICATION
(8). Kingdom Monera
(9). KINGDOM PROTISTA
(10). Protozoans
(11). Kingdom Fungi
(12). Kingdom Plantae – Overview
(13). Kingdom Animalia – Overview
(14). Viruses, Viroids and Lichens
(15). PLANT KINGDOM – Taxonomy
(16). Plant Kingdom – Algae
(17). Plant Kingdom – Bryophytes
(18). Plant Kingdom – Pteridophytes
(19). PLANT KINGDOM – Gymnosperms
(20). PLANT KINGDOM – ANGIOSPERMS
(21). Plant Life Cycle and Alternation of Generations
(22). ANIMAL KINGDOM – BASIS OF CLASSIFICATION
(23). CLASSIFICATION of ANIMALS
(24). Phylum – Porifera
(25). Phylum – Coelenterata (Cnidaria)
(26). Phylum – Ctenophora
(27). Phylum – Platyhelminthes

(28). Phylum – Aschelminthes
(29). Phylum – Annelida
(30). Phylum – Arthropoda
(31). Phylum – Mollusca
(32). Phylum – Echinodermata
(33). Phylum – Hemichordata
(34). Phylum – Chordata
(35). Class – Cyclostomata
(36). Class – Chondrichthyes
(37). Class – Osteichthyes
(38). Class – Amphibia
(39). Class – Reptilia
(40). Class – Aves
(41). Class – Mammalia
(42). Salient features of phyla in animal kingdom
(43). MORPHOLOGY OF FLOWERING PLANTS – INTRODUCTION
(44). MORPHOLOGY OF FLOWERING PLANTS – THE ROOT
(45). MORPHOLOGY OF FLOWERING PLANTS – THE STEM
(46). MORPHOLOGY OF FLOWERING PLANTS – THE LEAF
(47). MORPHOLOGY OF FLOWERING PLANTS – THE INFLORESCENCE
(48). MORPHOLOGY OF FLOWERING PLANTS – THE FLOWER
(49). MORPHOLOGY OF FLOWERING PLANTS – THE FRUIT
(50). MORPHOLOGY OF FLOWERING PLANTS – THE SEED
(51). SEMI–TECHNICAL DESCRIPTION OF A TYPICAL FLOWERING PLANT
(52). DESCRIPTION OF SOME IMPORTANT FAMILIES – Fabaceae
(53). DESCRIPTION OF SOME IMPORTANT FAMILIES – Solanaceae
(54). DESCRIPTION OF SOME IMPORTANT FAMILIES – Lilaceae
(55). ANATOMY OF FLOWERING PLANTS – Introduction
(56). ANATOMY OF FLOWERING PLANTS – The Tissues
(57). THE TISSUE SYSTEM
(58). ANATOMY OF DICOTYLEDONOUS AND MONOCOTYLEDONOUS PLANTS
(59). ANATOMY OF FLOWERING PLANTS – SECONDARY GROWTH
(60). STRUCTURAL ORGANISATION IN ANIMALS

(61). ANIMAL TISSUES
(62). ORGAN AND ORGAN SYSTEM
(63). EARTHWORM
(64). COCKROACH
(65). FROGS
(66). CELL: STRUCTURE AND FUNCTIONS
(67). CELL: THE UNIT OF LIFE
(68). Cell Theory
(69). AN OVERVIEW OF CELL
(70). PROKARYOTIC CELLS
(71). EUKARYOTIC CELLS
(72). EUKARYOTIC CELLS – Cell Membrane
(73). EUKARYOTIC CELLS – Cell Wall
(74). EUKARYOTIC CELLS – Endomembrane System
(75). EUKARYOTIC CELLS – Mitochondria
(76). EUKARYOTIC CELLS – Plastids
(77). EUKARYOTIC CELLS – Ribosomes
(78). EUKARYOTIC CELLS – Cytoskeleton
(79). EUKARYOTIC CELLS – Cilia and Flagella
(80). EUKARYOTIC CELLS – Centrosome and Centrioles
(81). EUKARYOTIC CELLS – Nucleus
(82). EUKARYOTIC CELLS – Microbodies
(83). BIOMOLECULES – INTRODUCTION
(84). PRIMARY AND SECONDARY METABOLITES
(85). BIOMACROMOLECULES
(86). PROTIENS
(87). POLYSACCHARIDES
(88). NUCLEIC ACIDS
(89). STRUCTURE OF PROTEINS
(90). NATURE OF BOND LINKING MONOMERS IN A POLYMER
(91). DYNAMIC STATE OF BODY CONSTITUENTS --- CONCEPT OF METABOLISM
(92). METABOLIC BASIS FOR LIVING
(93). THE LIVING STATE
(94). ENZYMES
(95). CHEMICAL REACTIONS
(96). How do Enzymes bring about such High Rates of Chemical Conversion?
(97). Nature of Enzymes Action
(98). Factors Affecting Enzymes Activity
(99). Classification and Nomenclature of Enzymes
(100). Co-factors
(101). CELL CYCLE AND CELL DIVISION
(102). Phases of Cell Cycle
(103). M PHASE
(104). Prophase
(105). Metaphase

(106). Anaphase
(107). Telophase
(108). Cytokinesis
(109). Significance of Mitosis
(110). MEIOSIS
(111). Meiosis I
(112). Meiosis II
(113). SIGNIFICANCE OF MEIOSIS
(114). PLANT PHYSIOLOGY
(115). MELVIN CALVIN
(116). TRANSPORT IN PLANTS
(117). MEANS OF TRANSPORT
(118). Plant–Water Relations
(119). LONG DISTANCE TRANSPORT OF WATER
(120). How do Plants Absorb Water?
(121). Water Movement up a Plant
(122). TRANSPIRATION
(123). Transpiration and Photosynthesis – A Compromise
(124). UPTAKE AND TRANSPORT OF MINERAL NUTRIENTS
(125). PHLOEM TRANSPORT: FLOW FROM SOURCE TO SINK
(126). PHOTOSYNTHESIS IN HIGHER PLANTS
(127). PHOTOSYNTHESIS – EARLY EXPERIMENTS
(128). WHERE DOES PHOTOSYNTHESIS TAKE PLACE?
(129). PIGMENTS INVOLVED IN PHOTOSYNTHESIS
(130). LIGHT REACTION
(131). THE ELECTRON TRANSPORT
(132). ATP AND NADPH USAGE
(133). THE C4 PATHWAY
(134). PHOTORESPIRATION
(135). FACTORS AFFECTING PHOTOSYNTHESIS
(136). RESPIRATION IN PLANTS
(137). DO PLANTS BREATHE?
(138). GLYCOLYSIS
(139). FERMENTATION
(140). AEROBIC RESPIRATION
(141). THE RESPIRATORY BALANCE SHEET
(142). AMPHIBOLIC PATHWAY
(143). RESPIRATORY QUOTIENT
(144). PLANT GROWTH AND DEVELOPMENT – INTRODUCTION
(145). GROWTH
(146). DIFFERENTIATION, DEDIFFERENTIATION AND REDIFFERENTIATION
(147). DEVELOPMENT
(148). PLANT GROWTH REGULATORS
(149). Physiological Effects of Plant Growth Regulators

(150). PHOTOPERIODISM
(151). VERNALISATION
(152). HUMAN PHYSIOLOGY
(153). DIGESTION AND ABSORPTION
(154). DIGESTIVE SYSTEM
(155). DIGESTION OF FOOD
(156). ABSORPTION OF DIGESTED PRODUCTS
(157). DISORDERS OF DIGESTIVE SYSTEM
(158). BREATHING AND EXCHANGE OF GASES
(159). RESPIRATORY ORGANS - INTRODUCTION
(160). Human Respiratory System
(161). MECHANISM OF BREATHING
(162). Respiratory Volumes and Capacities
(163). EXCHANGE OF GASES
(164). TRANSPORT OF GASES
(165). REGULATION OF RESPIRATION
(166). DISORDERS OF RESPIRATORY SYSTEM
(167). BODY FLUIDS AND CIRCULATION - INTRODUCTION
(168). BLOOD
(169). BLOOD GROUPS
(170). Coagulation of Blood
(171). LYMPH (TISSUE FLUID)
(172). CIRCULATORY PATHWAYS
(173). Human Circulatory System
(174). Cardiac Cycle
(175). Electrocardiograph (ECG)
(176). DOUBLE CIRCULATION
(177). REGULATION OF CARDIAC ACTIVITY
(178). DISORDERS OF CIRCULATORY SYSTEM
(179). EXCRETORY PRODUCTS AND THEIR ELIMINATION - INTRODUCTION
(180). HUMAN EXCRETORY SYSTEM
(181). URINE FORMATION
(182). FUNCTION OF THE TUBULES
(183). MECHANISM OF CONCENTRATION OF THE FILTRATE
(184). REGULATION OF KIDNEY FUNCTION
(185). MICTURITION
(186). ROLE OF OTHER ORGANS IN EXCRETION
(187). DISORDERS OF THE EXCRETORY SYSTEM
(188). LOCOMOTION AND MOVEMENT - INTRODUCTION
(189). TYPES OF MOVEMENTS
(190). MUSCLE
(191). SKELETAL SYSTEM
(192). JOINTS
(193). DISORDERS OF MUSCULAR AND SKELETAL SYSTEM
(194). NEURAL CONTROL AND COORDINATION - INTRODUCTION

(195). NEURAL SYSTEM
(196). HUMAN NEURAL SYSTEM
(197). NEURON AS STRUCTURAL AND FUNCTIONAL UNIT OF NEURAL SYSTEM
(198). Generation and Conduction of Nerve Impulse
(199). Transmission of Impulses
(200). CENTRAL NEURAL SYSTEM
(201). REFLEX ACTION AND REFLEX ARC
(202). SENSORY RECEPTION AND PROCESSING
(203). Eye – VISION AND PROCESSING
(204). The Ear – HEARING AND PROCESSING
(205). CHEMICAL COORDINATION AND INTEGRATION
(206). ENDOCRINE GLANDS AND HORMONES
(207). HUMAN ENDOCRINE SYSTEM
(208). The Hypothalamus
(209). The pituitary Gland
(210). The Pineal Gland
(211). Thyroid Gland
(212). Parathyroid Gland
(213). Thymus
(214). Adrenal Gland
(215). Pancreas
(216). Testis
(217). Ovary
(218). HORMONES OF HEART, KIDNEY AND GASTROINTESTINAL TRACT
(219). MECHANISM OF HORMONE ACTION

43. Grade 11 Physics

(1). WHAT IS PHYSICS?
(2). SCOPE AND EXCITEMENT OF PHYSICS
(3). Hypothesis, axioms and models
(4). PHYSICS, TECHNOLOGY AND SOCIETY
(5). Albert Einstein [1879– 1955]
(6). FUNDAMENTAL FORCES IN NATURE
(7). Satyendranath Bose [1894 – 1974]
(8). NATURE OF PHYSICAL LAWS
(9). Conservation laws in physics
(10). UNITS AND MEASUREMENTS – INTRODUCTION
(11). THE INTERNATIONAL SYSTEM OF UNITS
(12). MEASUREMENT OF LENGTH
(13). MEASUREMENT OF MASS
(14). MEASUREMENT OF TIME
(15). ACCURACY, PRECISION OF INSTRUMENTS AND ERRORS IN MEASUREMENT
(16). SIGNIFICANT FIGURES
(17). DIMENSIONS OF PHYSICAL QUANTITIES
(18). DIMENSIONAL FORMULAE AND DIMENSIONAL EQUATIONS
(19). DIMENSIONAL ANALYSIS AND ITS

APPLICATIONS
(20). MOTION IN A STRAIGHT LINE – Basics
(21). Motion in a straight line – AVERAGE VELOCITY AND AVERAGE SPEED
(22). Motion in a straight line – INSTANTANEOUS VELOCITY AND SPEED
(23). Motion in a straight line – ACCELERATION
(24). Motion in a straight line – KINEMATIC EQUATIONS FOR UNIFORMLY ACCELERATED MOTION
(25). Motion in a straight line – RELATIVE VELOCITY
(26). ELEMENTS OF CALCULUS
(27). MOTION IN A PLANE
(28). MOTION IN A PLANE WITH CONSTANT ACCELERATION
(29). PROJECTILE MOTION
(30). UNIFORM CIRCULAR MOTION – centripetal acceleration,
(31). SCALARS AND VECTORS
(32). LAWS OF MOTION
(33). COMMON FORCES IN MECHANICS
(34). CIRCULAR MOTION
(35). Friction on an inclined plane
(36). Circular Motion of a car on a level road
(37). Circular Motion of a car on a banked road
(38). SOLVING PROBLEMS IN MECHANICS
(39). The Scalar Product
(40). NOTIONS OF WORK AND KINETIC ENERGY – THE WORK ENERGY THEOREM
(41). THE CONCEPT OF POTENTIAL ENERGY
(42). THE POTENTIAL ENERGY OF A SPRING
(43). VARIOUS FORMS OF ENERGY
(44). The Principle of Conservation of Energy
(45). POWER
(46). Collisions
(47). SYSTEMS OF PARTICLES AND ROTATIONAL MOTION
(48). VECTOR PRODUCT OF TWO VECTORS
(49). ANGULAR VELOCITY AND ITS RELATION WITH LINEAR VELOCITY
(50). Angular acceleration
(51). Torque – moment of force
(52). Angular momentum of a particle
(53). Torque and angular momentum for a system of particles
(54). Equilibrium of a rigid body
(55). Couple
(56). Principle of moments
(57). Centre of gravity

(58). Moment of Inertia
(59). Theorem of perpendicular axes
(60). Theorem of parallel axes
(61). KINEMATICS OF ROTATIONAL MOTION ABOUT A FIXED AXIS
(62). DYNAMICS OF ROTATIONAL MOTION ABOUT A FIXED AXIS
(63). ANGULAR MOMENTUM IN CASE OF ROTATION ABOUT A FIXED AXIS
(64). Conservation of angular momentum
(65). ROLLING MOTION
(66). GRAVITATION – History
(67). KEPLER'S LAWS
(68). UNIVERSAL LAW OF GRAVITATION
(69). THE GRAVITATIONAL CONSTANT
(70). ACCELERATION DUE TO GRAVITY OF THE EARTH
(71). ACCELERATION DUE TO GRAVITY BELOW AND ABOVE THE SURFACE OF EARTH
(72). GRAVITATIONAL POTENTIAL ENERGY
(73). ESCAPE SPEED
(74). Earth Satellites
(75). ENERGY OF AN ORBITING SATELLITE
(76). GEOSTATIONARY AND POLAR SATELLITES
(77). Weightlessness
(78). Newton's Principia
(79). Johannes Kepler (1571–1630]
(80). MECHANICAL PROPERTIES OF SOLIDS – INTRODUCTION
(81). ELASTIC BEHAVIOR OF SOLIDS
(82). STRESS AND STRAIN
(83). Robert Hooke (1635 – 1703 AD)
(84). HOOKES LAW
(85). STRESS STRAIN CURVE
(86). ELASTIC MODULI
(87). APPLICATIONS OF ELASTIC BEHAVIOR OF MATERIALS
(88). MECHANICAL PROPERTIES OF FLUIDS – PRESSURE
(89). MECHANICAL PROPERTIES OF FLUIDS – Density
(90). Pascal's Law
(91). Variation of pressure with depth
(92). hydrostatic paradox
(93). Atmospheric Pressure and Gauge Pressure
(94). Hydraulic Machines
(95). Archimedes Principle
(96). Archimedes (287 – 212 B.C.)
(97). STREAMLINE FLOW
(98). BERNOULLI'S PRINCIPLE
(99). Daniel Bernoulli [1700 – 1732]

(100). Speed of Efflux: Torricelli's Law
(101). Venturi-meter
(102). Blood Flow and Heart Attack
(103). Dynamic Lift
(104). Ball moving without spin
(105). Ball moving with spin - Magnus effect
(106). Aerofoil at lift on airman wing
(107). VISCOSITY
(108). Stokes' Law
(109). REYNOLDS NUMBER
(110). SURFACE TENSION
(111). WHAT IS BLOOD PRESSURE ?
(112). TEMPERATURE AND HEAT
(113). MEASUREMENT OF TEMPERATURE
(114). IDEAL GAS EQUATION AND ABSOLUTE TEMPERATURE
(115). THERMAL EXPANSION
(116). SPECIFIC HEAT CAPACITY
(117). CALORIMETRY
(118). CHANGE OF STATE
(119). Triple point
(120). Latent Heat
(121). HEAT TRANSFER
(122). NEWTONS LAW OF COOLING
(123). THERMODYNAMICS - INTRODUCTION
(124). THERMAL EQUILIBRIUM
(125). ZEROTH LAW OF THERMODYNAMICS
(126). HEAT, INTERNAL ENERGY AND WORK
(127). FIRST LAW OF THERMODYNAMICS
(128). SPECIFIC HEAT CAPACITY
(129). THERMODYNAMIC STATE VARIABLES AND EQUATION OF STATE
(130). THERMODYNAMIC PROCESSES
(131). HEAT ENGINES
(132). REFRIGERATORS AND HEAT PUMPS
(133). Lord Kelvin (William Thomson) (1824 - 1907)
(134). Rudolf Clausius [1822-1888]
(135). SECOND LAW OF THERMODYNAMICS
(136). REVERSIBLE AND IRREVERSIBLE PROCESSES
(137). CARNOT ENGINE
(138). KINETIC THEORY - INTRODUCTION
(139). MOLECULAR NATURE OF MATTER
(140). BEHAVIOR OF GASES
(141). Kinetic theory of ideal gas
(142). Founders of Kinetic Theory of Gases
(143). Maxwell Distribution Function
(144). LAW OF EQUIPARTITION OF ENERGY
(145). SPECIFIC HEAT CAPACITY
(146). Specific Heat Capacity of Solids

(147). Specific Heat Capacity of Water
(148). MEAN FREE PATH
(149). OSCILLATIONS - INTRODUCTION
(150). PERIODIC AND OSCILLATORY MOTIONS
(151). SIMPLE HARMONIC MOTION
(152). SIMPLE HARMONIC MOTION AND UNIFORM CIRCUMR MOTION
(153). VELOCITY AND ACCELERATION IN SIMPLE HARMONIC MOTION
(154). FORCE LAW FOR SIMPLE HARMONIC MOTION
(155). ENERGY IN SIMPLE HARMONIC MOTION
(156). SOME SYSTEMS EXECUTING SIMPLE HARMONIC MOTION
(157). The Simple Pendulum
(158). DAMPED SIMPLE HARMONIC MOTION
(159). FORCED OSCILLATIONS AND RESONANCE
(160). WAVES - INTRODUCTION
(161). TRANSVERSE AND LONGITUDINAL WAVES
(162). DISPLACEMENT RELATION IN A PROGRESSIVE WAVE
(163). THE SPEED OF A TRAVELING WAVE
(164). THE PRINCIPLE OF SUPERPOSITION OF WAVES
(165). REFLECTION OF WAVES
(166). STANDING WAVES AND NORMAL MODES
(167). BEATS
(168). DOPPLER EFFECT
(169). Application of Doppler effect

44. Grade 11 Chemistry

(1). BASIC CONCEPTS OF CHEMISTRY
(2). NATURE OF MATTER
(3). PROPERTIES OF MATTER AND THEIR MEASUREMENT
(4). Mass and Weight
(5). Volume
(6). Density
(7). Temperature
(8). Uncertainty in measurement
(9). LAWS OF CHEMICAL COMBINATIONS
(10). DALTON'S ATOMIC THEORY
(11). ATOMIC AND MOLECULAR MASSES
(12). MOLE CONCEPT AND MOLAR MASSES
(13). PERCENTAGE COMPOSITION
(14). Balancing a chemical equation
(15). Stoichiometry and stoichiometric calculations
(16). Reactions in solutions
(17). STRUCTURE OF ATOM
(18). SUB-ATOMIC PARTICLES
(19). Charge to Mass Ratio of Electron
(20). Charge on the Electron

(21). Discovery of Protons and Neutrons
(22). Millikan's Oil Drop Method
(23). Thompson Model of Atom
(24). Rutherford's Nuclear Model of Atom
(25). Atomic Number and Mass Number
(26). Isobars and Isotopes
(27). Drawbacks of Rutherford Model
(28). DEVELOPMENTS LEADING TO THE BOHR'S MODEL OF ATOM
(29). Wave Nature of Electromagnetic Radiation
(30). Particle Nature of Electromagnetic Radiation – Planck's constant Theory
(31). Photoelectric Effect
(32). Dual Behavior of Electromagnetic Radiation
(33). Evidence for the quantized Electronic Energy Levels: Atomic Spectra
(34). BOHR'S MODEL FOR HYDROGEN ATOM
(35). What does the negative electronic energy (En) for hydrogen atom mean?
(36). Towards quantum mechanical model of the atom
(37). QUANTUM MECHANICAL MODEL OF ATOM
(38). Orbitals and Quantum Numbers
(39). Orbit orbital and its importance
(40). Shapes of Atomic Orbitals
(41). Energies of Orbitals
(42). Filling of Orbitals in Atom
(43). Electronic Configuration of Atoms
(44). Stability of completely filled and half filled subshells
(45). Causes of Stability of Completely Filled and Half Filled Sub-shells
(46). Rays and radioactivity
(47). Albert Einstein [1879 – 1955]
(48). Niels Bohr (1885 1962)
(49). Louis de Broglie (1892–1987)
(50). Werner Heisenberg (1901 1976)
(51). Erwin Schrodinger
(52). CLASSIFICATION OF ELEMENTS AND PERIODICITY IN PROPERTIES
(53). Genesis of periodic classification
(54). Dmitri Mendeleev
(55). MODERN PERIODIC LAW AND THE PRESENT FORM OF THE PERIODIC TABLE
(56). NOMENCLATURE OF ELEMENTS WITH ATOMIC NUMBERS > 100
(57). Electronic configurations of elements and the periodic table
(58). Electronic configurations and types of

elements – s, p, d, f blocks
(59). Metals Non Metals and Metalloids
(60). Periodic Trends in Physical properties of elements
(61). Summary of trends in physical properties
(62). Periodic trends in chemical properties
(63). Periodic trends and chemical reactivity
(64). CHEMICAL BONDING AND MOLECULAR STRUCTURE
(65). Kossel Lewis Approach to chemical bonding
(66). IONIC OR ELECTROVALENT BOND
(67). BOND PARAMETERS
(68). THE VALENCE SHELL ELECTRON PAIR REPULSION (VSEPR) THEORY
(69). Valence Bond Theory
(70). Orbital Overlap Concept
(71). Directional Properties of Bonds
(72). Overlapping of Atomic Orbitals
(73). Types of Overlapping and Nature or Covalent Bonds
(74). HYBRIDISATION
(75). Types of Hybridization
(76). Other Examples of sp3, sp2, and sp Hybridization
(77). Hybridization of Elements involving d Orbitals
(78). MOLECULAR ORBITAL THEORY
(79). Types of Molecular orbitals
(80). Energy Level Diagram for Molecular orbitals
(81). MO Theory – Electronic Configuration and Molecular Behavior
(82). MO Theory – BONDING IN SOME HOMONUCLEAR DIATOMIC MOLECULES
(83). HYDROGEN BONDING
(84). STATES OF MATTER – Introduction
(85). INTERMOLECULAR FORCES
(86). THERMAL ENERGY
(87). INTERMOLECULAR FORCES vs THERMAL INTERACTIONS
(88). THE GASEOUS STATE
(89). THE GAS LAWS
(90). Ideal Gas equation
(91). Kinetic Molecular Theory of gases
(92). BEHAVIOUR OF REAL GASES: DEVIATION FROM IDEAL GAS BEHAVIOR
(93). LIQUEFACTION OF GASES
(94). Liquid state
(95). Surface Tension
(96). Viscosity

(97). THERMODYNAMICS – Introduction
(98). THERMODYNAMIC STATE
(99). The System and the Surroundings
(100). Types of the System
(101). The State of the System
(102). The Internal Energy as a State Function
(103). APPLICATIONS
(104). Enthalpy H – A new state function
(105). Extensive and Intensive Properties
(106). Heat Capacity
(107). The relationship between Cp and Cv for an ideal gas
(108). MEASUREMENT OF δU AND δH – CALORIMETRY
(109). ENTHALPY CHANGE δrH OF A REACTION – REACTION ENTHALPY
(110). Standard enthalpy of reactions
(111). Enthalpy changes during phase transformations
(112). Standard enthalpy of formation
(113). Thermochemical equations
(114). Hess's Law of constant heat summation
(115). Standard enthalpy of combustion ΔcH0
(116). Enthalpy of atomization ΔaH0
(117). Bond Enthalpy ΔbondH0
(118). Enthalpy of Solution ΔsolH0
(119). Lattice Enthalpy
(120). SPONTANEITY
(121). Entropy and spontaneity
(122). Gibbs energy and spontaneity
(123). Gibbs energy change and equilibrium
(124). EQUILIBRIUM – Introduction
(125). EQUILIBRIUM IN PHYSICAL PROCESSES
(126). Equilibrium involving dissolution of solid or gases in liquids
(127). Features of Physical equilibria
(128). General Characteristics of Equilibria Involving Physical Processes
(129). EQUILIBRIUM IN CHEMICAL PROCESSES – DYNAMIC EQUILIBRIUM
(130). LAW OF CHEMICAL EQUILIBRIUM AND EQUILIBRIUM CONSTANT
(131). HOMOGENEOUS EQUILIBRIA
(132). HETEROGENEOUS EQUILIBRIA
(133). Units of Equilibrium Constant
(134). Applications of equilibrium constants
(135). RELATIONSHIP BETWEEN EQUILIBRIUM CONSTANT K REACTION QUOTIENT Q AND GIBBS ENERGY G
(136). FACTORS AFFECTING EQUILIBRIA
(137). IONIC EQUILIBRIUM IN SOLUTION
(138). ACIDS BASES AND SALTS

(139). Arrhenius Concept of Acids and Bases
(140). The Bronsted Lowry Acids and Bases
(141). Lewis Acids and Bases
(142). IONIZATION OF ACIDS AND BASES
(143). THE IONIZATION CONSTANT OF WATER AND ITS IONIC PRODUCT
(144). The pH Scale
(145). IONIZATION CONSTANTS OF WEAK ACIDS
(146). IONISATION OF WEAK BASES
(147). Relation between Ka and Kb
(148). Di and Polybasic Acids and Di and Polyacidic bases
(149). Factors Affecting Acid Strength
(150). Common Ion Effect in the Ionization of Acids and Bases
(151). Hydrolysis of salts and the pH of their solutions
(152). BUFFER SOLUTIONS
(153). SOLUBILITY EQUILIBRIA OF SPARINGLY SOLUBLE SALTS
(154). Common ion effect on solubility of ionic salts
(155). Michael Faraday 1791 – 1867
(156). REDOX REACTIONS
(157). CLASSICAL IDEA OF REDOX REACTIONS – OXIDATION AND REDUCTION REACTIONS
(158). REDOX REACTIONS IN TERMS OF ELECTRON TRANSFER REACTIONS
(159). OXIDATION NUMBER
(160). Types of Redox Reactions
(161). The Paradox of Fractional Oxidation Number
(162). Balancing of Redox Reactions
(163). Redox reactions as the basis for titrations
(164). Limitation of concept of oxidation number
(165). REDOX REACTIONS AND ELECTRODE PROCESSES
(166). Hydrogen
(167). DIHYDROGEN – H2
(168). PREPARATION OF DIHYDROGEN H2
(169). PHYSICAL PROPERTIES OF DIHYDROGEN
(170). CHEMICAL PROPERTIES OF DIHYDROGEN
(171). Uses of Dihydrogen
(172). HYDRIDES
(173). WATER
(174). Chemical properties of water
(175). Hard and Soft Water
(176). Temporary hardness of Water
(177). Permanent Hardness of Water

(178). HYDROGEN PEROXIDE (H2O2) – Preparation
(179). HYDROGEN PEROXIDE (H2O2) – Physical Properties
(180). HYDROGEN PEROXIDE (H2O2) – Structure
(181). HYDROGEN PEROXIDE (H2O2) – Chemical Properties
(182). HYDROGEN PEROXIDE (H2O2) – Storage
(183). HYDROGEN PEROXIDE (H2O2) – Uses
(184). HEAVY WATER D2O
(185). DIHYDROGEN AS A FUEL
(186). The s–block elements – Introduction
(187). GROUP 1 ELEMENTS: ALKALI METALS
(188). GROUP 1 ELEMENTS – ALKALI METALS – Chemical Properties
(189). GROUP 1 ELEMENTS – ALKALI METALS – Uses
(190). GENERAL CHARACTERISTICS OF THE COMPOUNDS OF THE ALKALI METALS
(191). ANOMALOUS PROPERTIES OF LITHIUM
(192). SOME IMPORTANT COMPOUNDS OF SODIUM
(193). BIOLOGICAL IMPORTANCE OF SODIUM AND POTASSIUM
(194). GROUP 2 ELEMENTS – ALKALINE EARTH METALS
(195). GROUP 2 ELEMENTS – ALKALINE EARTH METALS – Chemical Properties
(196). GROUP 2 ELEMENTS (ALKALINE EARTH METALS) – USES
(197). GENERAL CHARACTERISTICS OF COMPOUNDS OF THE ALKALINE EARTH METALS
(198). ANAMOLOUS BEHAVIOUR OF BERYLLIUM
(199). Diagonal relationship between Beryllium and Aluminum
(200). SOME IMPORTANT COMPOUNDS OF CALCIUM
(201). BIOLOGICAL IMPORTANCE OF MAGNESIUM AND CALCIUM
(202). THE p – BLOCK ELEMENTS
(203). GROUP 13 ELEMENTS: THE BORON FAMILY
(204). GROUP 13 ELEMENTS – Chemical Properties
(205). IMPORTANT TRENDS AND ANOMALOUS PROPERTIES OF BORON
(206). SOME IMPORTANT COMPOUNDS OF BORON
(207). USES OF BORON AND ALUMINUM AND THEIR COMPOUNDS
(208). GROUP 14 ELEMENTS: THE CARBON FAMILY
(209). GROUP 14 ELEMENTS: Chemical Properties
(210). IMPORTANT TRENDS AND ANOMALOUS BEHAVIOR OF CARBON
(211). ALLOTROPES OF CARBON
(212). Uses of Carbon
(213). SOME IMPORTANT COMPOUNDS OF CARBON –

mechanisms
(242). Methods of purification of organic compounds
(243). Sublimation
(244). Crystallization
(245). Distillation
(246). Fractional Distillation
(247). Distillation under reduced pressure
(248). Steam Distillation
(249). Differential Extraction
(250). Chromatography
(251). Adsorption Chromatography
(252). QUALITATIVE ANALYSIS OF ORGANIC COMPOUNDS
(253). Detection of Other Elements
(254). Quantitative Analysis – Carbon and Hydrogen
(255). Quantitative Analysis – Nitrogen
(256). Quantitative Analysis – Halogens (Carius method)
(257). Quantitative Analysis – Sulphur
(258). Quantitative Analysis – Phosphorus
(259). Quantitative Analysis – Oxygen
(260). HYDROCARBONS – INTRODUCTION
(261). Classification Hydrocarbons
(262). ALKANES
(263). Alkanes Preparation
(264). Alkanes Physical Properties
(265). Alkanes Halogenation Substitution reactions
(266). Alkanes Combustion
(267). Alkanes Controlled oxidation
(268). Alkanes Isomerization
(269). Alkanes Aromatisation
(270). Alkanes Reaction with steam
(271). Alkanes Pyrolysis
(272). Alkanes Conformations
(273). ALKENES
(274). Alkenes Preparation
(275). Alkenes Physical properties
(276). Alkenes Chemical properties
(277). Alkynes
(278). Alkynes Physical properties
(279). Alkynes Chemical properties
(280). Alkyne Polymerization
(281). Friedrich August Kekule
(282). AROMATIC HYDROCARBON
(283). Arenes Chemical properties
(284). Directive influence of a functional group in monosubstituted benzene

(285). CARCINOGENICITY AND TOXICITY
(286). ENVIRONMENTAL CHEMISTRY – Introduction
(287). ENVIRONMENTAL POLLUTION
(288). Atmospheric pollution
(289). Tropospheric Pollution
(290). Gaseous air pollutants
(291). Global Warming and Greenhouse Effect
(292). Acid rain
(293). Particulate Pollutants
(294). Stratospheric Pollution
(295). Water Pollution
(296). Causes of water pollution
(297). International Standards for Drinking Water
(298). SOIL POLLUTION
(299). INDUSTRIAL WASTE
(300). Strategies to control environmental pollution
(301). Green Chemistry
(302). Green Chemistry in day to day life

45. Grade 11 Spelling Bee

(1). 11th Grade English Spelling Bee Practice

46. Grade 12 Maths

(1). Types of Relations
(2). Types of Functions
(3). Composition of Functions and Invertible Function
(4). Binary Operations
(5). INVERSE TRIGONOMETRIC FUNCTIONS – Basic Concepts
(6). sine inverse function
(7). cosine inverse function
(8). cosecant inverse function
(9). secant inverse function
(10). tangent inverse function
(11). cotangent inverse function
(12). Inverse trigonometric functions – Summary
(13). Properties of Inverse Trigonometric Functions
(14). MATRICES
(15). Types of Matrices
(16). Equality of matrices
(17). Operations on Matrices
(18). Properties of matrix addition
(19). Properties of scalar multiplication of a matrix
(20). Multiplication of matrices
(21). Properties of multiplication of matrices
(22). Transpose of a Matrix

(23). Properties of transpose of the matrices
(24). Symmetric and Skew Symmetric Matrices
(25). Elementary Operation (Transformation) of a Matrix
(26). Invertible Matrices
(27). DETERMINANTS – Introduction
(28). Properties of Determinants
(29). Area of a Triangle using Determinant
(30). Minors and Cofactors
(31). Adjoint and Inverse of a Matrix
(32). Applications of Determinants and Matrices
(33). Continuous Function
(34). Concept of infinity
(35). Algebra of continuous functions
(36). Differentiability
(37). Theorem: If a function f is differentiable at a point c, then it is also continuous at that point.
(38). Derivatives of composite functions
(39). Derivatives of implicit functions
(40). Derivatives of inverse trigonometric functions
(41). Exponential and Logarithmic Functions
(42). Properties of ‘log’ functions
(43). Theorem – derivative of exponential and logarithm function
(44). Logarithmic Differentiation
(45). Derivatives of Functions in Parametric Forms
(46). Second Order Derivative
(47). Theorem: Rolle’s Theorem
(48). Theorem: Mean Value Theorem
(49). APPLICATION OF DERIVATIVES – Rate of Change of Quantities
(50). Increasing and Decreasing Functions
(51). Tangents and Normals
(52). Approximations
(53). Maxima and Minima
(54). Turning points
(55). Maximum and Minimum Values of a Function in a Closed Interval
(56). INTEGRALS – Introduction
(57). Integration as an Inverse Process of Differentiation
(58). standard formulae for integrals
(59). Geometrical interpretation of indefinite integral
(60). Some properties of indefinite integral
(61). Comparison between differentiation and integration

(62). Integration by substitution
(63). Integration using trigonometric identities
(64). Integrals of Some Particular Functions
(65). Integration by Partial Fractions
(66). Integration by Parts
(67). Integral of the type ex [f(x) + f'(x)]
(68). Integrals of some more types
(69). Definite Integral
(70). Fundamental Theorem of Calculus
(71). Evaluation of Definite Integrals by Substitution
(72). Some Properties of Definite Integrals
(73). Application of Calculus – Area under Simple Curves
(74). Area of the region bounded by a curve and a line
(75). Area between Two Curves
(76). Differential Equation
(77). Order of a differential equation
(78). Degree of a differential equation
(79). General and Particular Solutions of a Differential Equation
(80). Formation of a Differential Equation whose General Solution is given
(81). Procedure to form a differential equation that will represent a given family of curves
(82). Methods of Solving First Order, First Degree Differential Equations
(83). VECTOR ALGEBRA – Introduction
(84). VECTOR ALGEBRA – Some Basic Concepts
(85). Types of Vectors
(86). Addition of Vectors
(87). Properties of vector addition
(88). Multiplication of a Vector by a Scalar
(89). Components of a vector
(90). Vector joining two points
(91). Section formula
(92). Scalar (or dot) product of two vectors
(93). Important properties of scalar product
(94). Projection of a vector on a line
(95). Vector (or cross) product of two vectors
(96). Properties of vector product
(97). THREE DIMENSIONAL GEOMETRY using vector algebra
(98). Relation between the direction cosines of a line
(99). Direction cosines of a line passing through two points
(100). Equation of a Line in Space

(101). Angle between Two Lines
(102). Shortest Distance between Two Lines
(103). Distance between two skew lines
(104). Distance between parallel lines
(105). Plane
(106). Equation of a plane perpendicular to a given vector and passing through a given point
(107). Equation of a plane passing through three non collinear points
(108). Intercept form of the equation of a plane
(109). Plane passing through the intersection of two given planes
(110). Coplanarity of Two Lines
(111). Angle between Two Planes
(112). Distance of a Point from a Plane
(113). Angle between a Line and a Plane
(114). LINEAR PROGRAMMING
(115). Graphical method of solving linear programming problems
(116). Different Types of Linear Programming Problems
(117). Example – Allocation problem
(118). Conditional Probability
(119). Properties of conditional probability
(120). Multiplication Theorem on Probability
(121). Independent Events
(122). Partition of a sample space
(123). Theorem of total probability
(124). Bayes' Theorem
(125). Example – Bayes theorem
(126). Random Variables and its Probability Distributions
(127). Mean of a random variable
(128). Variance of a random variable
(129). Bernoulli trials
(130). Binomial distribution

47. Grade 12 Biology

(1). REPRODUCTION IN ORGANISMS
(2). ASEXUAL REPRODUCTION
(3). SEXUAL REPRODUCTION – Overview
(4). Sexual Reproduction – Pre-fertilization Events
(5). Sexual Reproduction – Fertilisation
(6). Sexual Reproduction = Post fertilisation Events
(7). SEXUAL REPRODUCTION IN FLOWERING PLANTS
(8). SEXUAL REPRODUCTION IN FLOWERING PLANTS – Double Fertilisation
(9). SEXUAL REPRODUCTION IN FLOWERING PLANTS –

Post Fertilization : structures and events
(10). SEXUAL REPRODUCTION IN FLOWERING PLANTS – Apomixis and polyembryony
(11). HUMAN REPRODUCTION – Overview
(12). HUMAN REPRODUCTION – THE MALE REPRODUCTIVE SYSTEM
(13). HUMAN REPRODUCTION – THE FEMALE REPRODUCTIVE SYSTEM
(14). HUMAN REPRODUCTION – Gametogenesis
(15). HUMAN REPRODUCTION – MENSTRUAL CYCLE
(16). HUMAN REPRODUCTION – FERTILIZATION AND IMPLANTATION
(17). HUMAN REPRODUCTION – PREGNANCY and EMBRYONIC DEVELOPMENT
(18). HUMAN REPRODUCTION – Parturition and Lactation
(19). REPRODUCTIVE HEALTH
(20). POPULATION EXPLOSION AND BIRTH CONTROL
(21). Medical Termination of Pregnancy (MTP)
(22). Sexually Transmitted Diseases[STDs]
(23). INFERTILITY – ART, IVF, ZIFT, IUT, GIFT, ICSI, AI, IUI
(24). PRINCIPLES OF INHERITANCE AND VARIATION
(25). INHERITANCE OF ONE GENE
(26). INHERITANCE OF TWO GENES
(27). Chromosomal Theory of Inheritance
(28). Linkage and Recombination
(29). SEX DETERMINATION IN ANIMALS
(30). Sex Determination in Humans
(31). Mutation
(32). GENETIC DISORDERS – Pedigree Analysis
(33). Mendelian Disorders
(34). Chromosomal disorders
(35). MOLECULAR BASIS OF INHERITANCE
(36). THE DNA
(37). Structure of Polynucleotide Chain
(38). Packaging of DNA Helix
(39). THE SEARCH FOR GENETIC MATERIAL
(40). The Genetic Material is DNA
(41). Properties of Genetic Material (DNA versus RNA)
(42). RNA World
(43). REPLICATION
(44). TRANSCRIPTION
(45). GENETIC – CODE
(46). Mutations and Genetic Code
(47). tRNA–the Adapter Molecule
(48). TRANSLATION
(49). REGULATION OF GENE EXPRESSION
(50). HUMAN GENOME PROJECT

(51). DNA FINGERPRINTING
(52). EVOLUTION
(53). EVOLUTION OF LIFE FORMS – A THEORY
(54). EVIDENCES FOR EVOLUTION
(55). ADAPTIVE RADIATION
(56). BIOLOGICAL EVOLUTION
(57). MECHANISM OF EVOLUTION
(58). HARDY–WEINBERG PRINCIPLE
(59). A BRIEF ACCOUNT OF EVOLUTION
(60). ORIGIN AND EVOLUTION OF MAN
(61). HUMAN HEALTH AND DISEASE
(62). COMMON DISEASES IN HUMANS
(63). IMMUNITY
(64). Innate Immunity
(65). Acquired Immunity
(66). Active and Passive Immunity
(67). Vaccination and Immunization
(68). Allergies
(69). Auto Immunity
(70). Immune System in the Body
(71). AIDS
(72). CANCER
(73). DRUGS AND ALCOHOL ABUSE
(74). Adolescence and Drug/Alcohol Abuse
(75). Addiction and Dependence
(76). Effect of Drug/Alcohol Abuse
(77). Prevention and Control
(78). STRATEGIES FOR ENHANCEMENT IN FOOD PRODUCTION
(79). ANIMAL HUSBANDARY
(80). Management of Farms and Farm Animals
(81). PLANT BREEDING
(82). Agriculture in India
(83). Plant Breeding for Disease Resistance
(84). Plant Breeding for Developing Resistance to Insect Pests
(85). Plant Breeding for Improved Food Quality
(86). SINGLE CELL PROTEIN (SCP)
(87). TISSUE CULTURE
(88). MICROBES IN HUMAN WELFARE – INTRODUCTION
(89). MICROBES IN HOUSEHOLD PRODUCTS
(90). MICROBES IN INDUSTRIAL PRODUCTS
(91). MICROBES IN SEWAGE TREATEMENT
(92). MICROBES IN PRODUCTION OF BIOGAS
(93). MICROBES AS BIOCONTROL AGENTS
(94). MICROBES AS BIOFERTILISERS
(95). BIOTECHNOLOGY:PRINCIPLES AND PROCESSES
(96). PRINCIPLES OF BIOTECHNOLOGY
(97). TOOLS OF RECOMBINANT DNA TECHNOLOGY
(98). Restriction Enzymes

(99). Cloning Vectors
(100). Competent Host (For Transformation with Recombinant DNA)
(101). PROCESSES OF RECOMBINANT DNA TECHNOLOGY
(102). Isolation of the Genetic Material (DNA)
(103). Cutting of DNA at Specific Locations
(104). Amplification of Gene of Interest using PCR
(105). Insertion of Recombinant DNA into the Host Cell/Organism
(106). Obtaining the Foreign Gene Product
(107). Downstream Processing
(108). BIOTECHNOLOGY AND ITS APPLICATIONS
(109). BIOTECHNOLOGICAL APPLICATIONS IN AGRICULTURE
(110). BIOTECHNOLOGICAL APPLICATIONS IN MEDICINE
(111). TRANSGENIC ANIMALS
(112). ETHICAL ISSUES
(113). ORGANISMS AND POPULATIONS
(114). ORGANISM AND ITS ENVIRONMENT
(115). Major Abiotic Factors
(116). Responses to Abiotic Factors
(117). Adaptations
(118). Population Attributes
(119). Population Growth
(120). Life History Variation
(121). Population Interactions
(122). ECOSYSTEM – INTRODUCTION
(123). ECOSYSTEM–– STRUCTURE AND FUNCTION
(124). PRODUCTIVITY
(125). DECOMPOSITION
(126). ENERGY FLOW
(127). ECOLOGICAL PYRAMIIDS
(128). ECOLOGICAL SUCCESSION
(129). Succession of Plants
(130). NUTRIENT CYCLING
(131). Ecosystem – Carbon Cycle
(132). Ecosystem – Phosphorus Cycle
(133). ECOSYSTEM SERVICES
(134). BIODIVERSITY
(135). How Many Species are there on Earth and How Many in India?
(136). Patterns of Biodiversity
(137). The importance of Species Diversity to the Ecosystem
(138). Loss of Biodiversity
(139). Causes of biodiversity losses
(140). BIODIVERSITY CONSERVATION
(141). How do we conserve Biodiversity?

(142). ENVIRONMENTAL ISSUES - INTRODUCTION
(143). AIR POLLUTION AND ITS CONTROL
(144). Controlling Vehicular Air Pollution: A Case Study of Delhi
(145). NOISE POLLUTION - INDIA
(146). WATER POLLUTION AND ITS CONTROL
(147). A Case Study of Integrated WasteWater Treatment
(148). SOLID WASTES
(149). Case Study of Remedy for Plastic Waste
(150). AGRO-CHEMICALS AND THEIR EFFECTS
(151). RADIOACTIVE WASTES
(152). GREENHOUSE EFFECT AND GLOBAL WARMING
(153). OZONE DEPLETION IN THE STRATOSPHERE
(154). DEGRADATION BY IMPROPER RESOURCE UTILIZATION AND MAINTENANCE
(155). DEFORESTATION

48. Grade 12 Economics

(1). A SIMPLE ECONOMY
(2). CENTRAL PROBLEMS OF AN ECONOMY
(3). ORGANIZATION OF ECONOMIC ACTIVITIES
(4). POSITIVE AND NORMATIVE ECONOMICS
(5). MICROECONOMICS AND MACROECONOMICS

49. Grade 12 Physics

(1). ELECTRIC CHARGES AND FIELDS
(2). CHARGING BY INDUCTION
(3). BASIC PROPERTIES OF ELECTRIC CHARGE
(4). COULOMB's LAW
(5). FORCES BETWEEN MULTIPLE CHARGES - principle of superposition
(6). ELECTRIC FIELD
(7). Electric field due to a system of charges
(8). Physical significance of electric field
(9). Example of electron falling through a field
(10). ELECTRIC FIELD LINES
(11). ELECTRIC FLUX
(12). ELECTRIC DIPOLE
(13). DIPOLE IN A UNIFORM EXTERNAL FIELD
(14). CONTINUOUS CHARGE DISTRIBUTION
(15). Gauss's Law
(16). APPLICATIONS OF GAUSS'S LAW
(17). Noteworthy points about electric fields
(18). UNIFICATION OF ELECTRICITY AND MAGNETISM
(19). ELECTROSTATIC POTENTIAL
(20). POTENTIAL DUE TO A POINT CHARGE
(21). POTENTIAL DUE TO AN ELECTRIC DIPOLE
(22). POTENTIAL DUE To A SYSTEM OF CHARGES
(23). EQUIPOTENTIAL SURFACES
(24). POTENTIAL ENERGY OF A SYSTEM OF CHARGES

(25). POTENTIAL ENERGY IN AN EXTERNAL FIELD
(26). ELECTROSTATICS OF CONDUCTORS
(27). DIELECTRICS AND POLARIZATION
(28). CAPACITORS AND CAPACITANCE
(29). THE PARALLEL PLATE CAPACITOR
(30). EFFECT OF DIELECTRIC ON CAPACITANCE
(31). ELECTRIC DISPLACEMENT
(32). COMBINATION OF CAPACITORS
(33). ENERGY STORED IN A CAPACITOR
(34). VAN DE GRAAFF GENERATOR
(35). CURRENT ELECTRICITY - INTRODUCTION
(36). OHM's LAW
(37). DRIFT OF ELECTRONS AND THE ORIGIN OF RESISTIVITY
(38). LIMITATIONS OF OHM's LAW
(39). RESISTIVITY OF VARIOUS MATERIALS
(40). COLOR CODE OF RESISTORS
(41). TEMPERATURE DEPENDENCE OF RESISTIVITY
(42). ELECTRICAL ENERGY, POWER
(43). COMBINATION OF RESISTORS - SERIES AND PARALLEL
(44). CELLS, EMF, INTERNAL RESISTANCE
(45). CHARGES IN CLOUD
(46). CELLS IN SERIES AND IN PARALLEL
(47). KIRCHHOFF'S RULES
(48). WHEATSTONE BRIDGE
(49). METER BRIDGE
(50). POTENTIOMETER
(51). Potentiometer - determining internal resistance of a cell
(52). MOVING CHARGES AND MAGNETISM
(53). MAGNETIC FORCE
(54). Magnetic force on a current-carrying conductor
(55). PERMITTIVITY AND PERMEABILITY
(56). MOTION IN A MAGNETIC FIELD
(57). HELICAL MOTION OF CHARGED PARTICLES AND AURORA BOREALIS
(58). MOTION IN COMBINED ELECTRIC AND MAGNETIC FIELDS
(59). MAGNETIC FIELD DUE TO A CURRENT ELEMENT, BIOT-SAVART LAW
(60). MAGNETIC FIELD ON THE AXIS OF A CIRCULAR CURRENT LOOP
(61). AMPERE'S CIRCUITAL LAW
(62). Andre Ampere (1775 - 1836)
(63). THE SOLENOID AND THE TOROID
(64). MAGNETIC CONFINEMENT
(65). FORCE BETWEEN TWO PARALLEL CURRENTS, THE AMPERE

(66). TORQUE ON CURRENT LOOP, MAGNETIC DIPOLE
(67). THE MOVING COIL GALVANOMETER
(68). MAGNETISM AND MATTER - INTRODUCTION
(69). THE BAR MAGNET
(70). MAGNETISM AND GAUSS'S LAW
(71). THE EARTH'S MAGNETISM
(72). WHAT HAPPENS TO MY COMPASS NEEDLES AT THE POLES
(73). EARTHS MAGNETIC FIELD
(74). MAGNETIZATION AND MAGNETIC INTENSITY
(75). MAGNETIC PROPERTIES OF MATERIALS
(76). PERMANENT MAGNETS AND ELECTROMAGNETS
(77). Magnetism Physical Quantities
(78). ELECTROMAGNETIC INDUCTION - INTRODUCTION
(79). THE EXPERIMENTS OF FARADAY AND HENRY
(80). MAGNETIC FLUX
(81). FARADAY's LAW OF INDUCTION
(82). MICHAEL FARADAY (1791 - 1867)
(83). LENZ's LAW AND CONSERVATION OF ENERGY
(84). MOTIONAL ELECTROMOTIVE FORCE
(85). ENERGY CONSIDERATION: A QUANTITATIVE STUDY
(86). EDDY CURRENTS
(87). ELECTROMAGNETIC DAMPING
(88). INDUCTANCE
(89). Mutual inductance
(90). Self-inductance
(91). AC GENERATOR
(92). ELECTROMAGNETIC INDUCTION - PHYSICAL QUANTITIES
(93). ALTERNATING CURRENT - INTRODUCTION
(94). NICOLA TESLA [1836 - 1943]
(95). AC VOLTAGE APPLIED TO A RESISTOR
(96). REPRESENTATION OF AC CURRENT AND VOLTAGE BY ROTATING VECTORS - PHASORS
(97). AC VOLTAGE APPLIED TO AN INDUCTOR
(98). AC VOLTAGE APPLIED TO A CAPACITOR
(99). AC VOLTAGE APPLIED TO A SERIES LCR CIRCUIT
(100). Resonance
(101). POWER IN AC CIRCUIT: THE POWER FACTOR
(102). LC OSCILLATIONS
(103). TRANSFORMERS
(104). Physical Quantities In Alternating Current
(105). ELECTROMAGNETIC WAVES - INTRODUCTION
(106). James Clerk Maxwell [1831 - 1879]
(107). DISPLACEMENT CURRENT
(108). ELECTROMAGNETIC WAVES
(109). ELECTROMAGNETIC SPECTRUM

(110). MICROWAVE OVEN
(111). RAY OPTICS AND OPTICAL INSTRUMENTS - INTRODUCTION
(112). PARTICLE MODEL OF LIGHT
(113). REFLECTION OF LIGHT BY SPHERICAL MIRRORS
(114). REFRACTION
(115). TOTAL INTERNAL REFLECTION
(116). Total internal reflection in nature and its technological applications
(117). REFRACTION AT SPHERICAL SURFACES AND BY LENSES
(118). Magnification
(119). Power of a lens
(120). Combination of thin lenses in contact
(121). REFRACTION THROUGH A PRISM
(122). DISPERSION BY A PRISM
(123). SOME NATURAL PHENOMENA DUE TO SUNLIGHT
(124). OPTICAL INSTRUMENTS
(125). WAVE OPTICS - INTRODUCTION
(126). DOES LIGHT TRAVEL IN A STRAIGHT LINE
(127). HUYGEN'S PRINCIPLE
(128). REFRACTION AND REFLECTION OF PLANE WAVES USING HUYGENS PRINCIPLE
(129). The doppler effect
(130). COHERENT AND INCOHERENT ADDITION OF WAVES
(131). INTERFERENCE OF LIGHT WAVES AND YOUNG'S EXPERIMENT
(132). DIFFRACTION
(133). POLARISATION
(134). DUAL NATURE OF RADIATION AND MATTER - INTRODUCTION
(135). ELECTRON EMISSION
(136). PHOTOELECTRIC EFFECT
(137). EXPERIMENTAL STUDY OF PHOTOELECTRIC EFFECT
(138). PHOTOELECTRIC EFFECT AND WAVE THEORY OF LIGHT
(139). Albert Einstein [1879 - 1955]
(140). EINSTEIN'S PHOTOELECTRIC EQUATION : ENERGY QUANTUM OF RADIATION
(141). PARTICLE NATURE OF LIGHT: THE PHOTON
(142). WAVE NATURE OF MATTER
(143). Photocell
(144). PROBABILITY INTERPRETATION TO MATTER WAVES
(145). DAVISSON AND GERMER EXPERIMENT
(146). ATOMS - INTRODUCTION
(147). ALPHA-PARTICLE SCATTERING AND

RUTHERFORD'S NUCLEAR MODEL OF ATOM
(148). ATOMIC SPECTRA
(149). BOHR MODEL OF THE HYDROGEN ATOM
(150). ORBIT VS STATE (ORBITAL PICTURE) OF ELECTRON IN ATOM
(151). Energy levels
(152). FRANCK HERTZ EXPERIMENT
(153). THE LINE SPECTRA OF THE HYDROGEN ATOM
(154). DE BROGLIE'S EXPLANATION OF BOHR'S SECOND POSTULATE OF QUANTIZATION
(155). LASER LIGHT
(156). NUCLEI - INTRODUCTION
(157). ATOMIC MASSES AND COMPOSITION OF NUCLEUS
(158). SIZE OF THE NUCLEUS
(159). Mass - Energy
(160). Nuclear binding energy
(161). NUCLEAR FORCE
(162). RADIOACTIVITY
(163). Law of radioactive decay
(164). Alpha decay
(165). Beta decay
(166). Gamma decay
(167). NUCLEAR ENERGY
(168). Nuclear Fission
(169). Nuclear reactor
(170). Nuclear fusion - energy generation in stars
(171). NUCLEAR HOLOCAUST
(172). Controlled thermonuclear fusion
(173). SEMICONDUCTOR ELECTRONICS: INTRODUCTION
(174). CLASSIFICATION OF METALS, CONDUCTORS AND SEMICONDUCTORS
(175). BAND THEORY OF SOLIDS
(176). INTRINSIC SEMICONDUCTOR
(177). EXTRINSIC SEMICONDUCTOR
(178). p-n JUNCTION
(179). SEMICONDUCTOR DIODE
(180). APPLICATION OF JUNCTION DIODE AS A RECTIFIER
(181). SPECIAL PURPOSE p-n JUNCTION DIODES - Zener diode
(182). Optoelectronic junction devices - PHOTODIODE, LED, SOLAR CELL
(183). JUNCTION TRANSISTOR
(184). Transistor: structure and action
(185). Basic transistor circuit configurations and transistor characteristics
(186). Transistor as a device
(187). Transistor as an Amplifier (CE-

Configuration)
(188). Feedback amplifier and transistor oscillator
(189). DIGITAL ELECTRONICS
(190). Logic gates
(191). INTEGRATED CIRCUITS
(192). FASTER AND SMALLER : The Future of Computer Technology
(193). COMMUNICATION SYSTEMS – INTRODUCTION
(194). ELEMENTS OF A COMMUNICATION SYSTEM
(195). BASIC TERMINOLOGY USED IN ELECTRONIC COMMUNICATION SYSTEMS
(196). BANDWIDTH OF SIGNALS
(197). BANDWIDTH OF TRANSMISSION MEDIUM
(198). PROPAGATION OF ELECTROMAGNETIC WAVES
(199). MODULATION AND ITS NECESSITY
(200). AMPLITUDE MODULATION
(201). PRODUCTION OF AMPLITUDE MODULATED WAVE
(202). DETECTION OF AMPLITUDE MODULATED WAVE
(203). The Internet

50. Grade 12 Chemistry
(1). The Solid State – Introduction
(2). General characteristics of solid state
(3). Amorphous and Crystalline Solids
(4). Classification of Crystalline Solids
(5). Molecular Solids
(6). Ionic Solids
(7). Metallic Solids
(8). Covalent or Network Solids
(9). Crystal Lattices and Unit Cells
(10). Number of atoms in a unit cell
(11). Closed Packed Structures
(12). Locating tetrahedral and octahedral voids
(13). Packing Efficiency
(14). Calculations involving unit cell
(15). Imperfections in Solids
(16). Electrical Properties
(17). Conduction of electricity in Metals
(18). Conduction of electricity in semi conductors
(19). Magnetic Properties
(20). Types of Solutions
(21). Expressing concentration of solutions
(22). Solubility
(23). Solubility of a solid in a liquid
(24). Solubility of a gas in a liquid
(25). Vapor Pressure of Liquid Solutions
(26). Vapor Pressure of Liquid–Liquid solutions

(27). Vapor Pressure of Solutions of Solids in Liquids
(28). Ideal and Non Ideal solutions
(29). Colligative properties and determination of molar mass
(30). Abnormal Molar Masses
(31). Electrochemistry – Introduction
(32). Electrochemical Cells – galvanic & electrolytic
(33). Galvanic Cells
(34). Measurement of electrode potential
(35). Nernst Equation
(36). Electrochemical cell and Gibbs energy of the reaction
(37). Conductance of electrolytic solutions
(38). Measurement of the Conductivity of Ionic Solutions
(39). Variation of conductivity and molar conductivity with concentration
(40). Strong electrolytes
(41). Weak electrolytes
(42). Applications of Kohlrausch law
(43). Electrolytic cells and electrolysis
(44). Quantitative Aspects of Electrolysis
(45). Batteries
(46). Fuel Cells
(47). Corrosion
(48). Hydrogen Economy
(49). Chemical kinetics – Introduction
(50). Rate of a chemical reaction
(51). Units of rate of a reaction
(52). Factors influencing rate of a reaction
(53). Molecularity of a Reaction
(54). Integrated Rate equations
(55). Gas phase reaction
(56). Half-Life of a Reaction
(57). Pseudo first order reaction
(58). Temperature dependence of the rate of a reaction
(59). Effect of Catalyst
(60). Collision theory of chemical reactions – steric factor
(61). Surface Chemistry – Introduction
(62). Adsorption
(63). Mechanism of Adsorption
(64). Types of Adsorption
(65). Characteristics of Physisorption
(66). Characteristics of chemisorption
(67). Chemisorption also increases with increase of surface are of the adsorbent

(68). Adsorption from solution phase
(69). Applications of adsorption
(70). Catalysis
(71). Catalysis – Homogeneous & Heterogeneous
(72). Adsorption Theory of Heterogeneous Catalysis
(73). Shape Selective catalyst Catalysis by Zeolites
(74). Enzyme catalysis
(75). Characteristics of enzyme catalysis
(76). Mechanism of enzyme catalysis
(77). Catalysts in industry
(78). Colloids
(79). Essential difference between a solution and a colloid is that of particle size
(80). Colloid Classification based on physical state of dispersed phase and dispersion medium
(81). Colloid Classification Based on Nature of Interaction between Dispersed Phase and Dispersion Medium
(82). Colloid Classification Based on Type of Particles of the Dispersed Phase – Multimolecular, Macromolecular and Associated Colloids
(83). Mechanism of micelle formation
(84). Cleansing action of soaps
(85). Preparation of Colloids
(86). Purification of Colloidal solutions
(87). Properties of colloidal solutions
(88). coagulation
(89). Coagulation of lyophilic Sols
(90). Protection of colloids
(91). Emulsions
(92). Colloids around us
(93). Applications of colloids
(94). General Principles and Processes of Isolation of Elements – Introduction
(95). Occurrence of metals
(96). Concentration of ores
(97). Extraction of crude metal from concentrated ore
(98). Thermodynamic principles of metallurgy
(99). Ellingham Diagram
(100). Limitations of Ellingham Diagram
(101). Applications of Thermodynamic Principles of Metallurgy
(102). Electrochemical Principles of Metallurgy
(103). Oxidation Reduction
(104). Refining
(105). Uses of Aluminum copper zinc and iron
(106). p–block elements

Introduction
(149). Haloalkanes and Haloarenes - Classification
(150). Haloalkanes and Haloarenes - Nomenclature
(151). Nature of C-X Bond
(152). Haloalkanes and Haloarenes - Method of Preparation From alchohols
(153). Haloalkanes and Haloarenes - Method of Preparation From Hydrocarbons
(154). Haloalkanes and Haloarenes Methods of Preparation Halogen Exchange
(155). Haloalkanes and Haloarenes - Physical Properties
(156). Haloalkanes Chemical Reactions
(157). Haloarenes Chemical Reactions
(158). Polyhalogen Compounds
(159). Victor Grignard
(160). Alcohols, Phenols and Ethers
(161). Classification - Mono Di Tri or Polyhydric Compounds
(162). Classification of Ethers
(163). Nomenclature - Alcohols
(164). Nomenclature of phenols
(165). Nomenclature of Ethers
(166). Structures of functional groups
(167). Preparation of alcohols From alkenes
(168). Preparation of alcohols From carbonyl compounds
(169). Preparation of alcohols From Grignard reagents
(170). Preparation of Phenols
(171). Physical Properties of Alcohols and phenols
(172). Chemical Reactions - Alcohols & Phenols
(173). Alcohols and Phenols - Reactions involving cleavage of Oxygen Hydrogen O-H bond
(174). Alcohols and Phenols - Reactions involving cleavage of carbon - oxygen [C-O] bond in alcohols
(175). Reactions of phenols
(176). Some commercially important Alcohols - Methanol, ethanol
(177). Preparation of Ethers
(178). Physical Properties of Ethers
(179). Chemical Reactions of Ethers by Cleavage of C-O bond
(180). Chemical Reactions of Ethers by Electrophilic substitution
(181). Aldehydes, Ketones and Carboxylic Acids
(182). Nomenclature and Structure of Carbonyl

group
(183). Preparation of Aldehydes and ketones
(184). Preparation of Aldehydes
(185). Preparation of Aldehydes from Hydrocarbons
(186). Preparation of ketones
(187). Physical Properties of aldehydes and ketones
(188). Aldehyde and Ketone Chemical Reactions – Nucleophilic addition reactions
(189). Aldehyde and Ketone Chemical Reduction Reactions
(190). Aldehyde and Ketone Chemical Oxidation
(191). Aldehyde and Ketone Reactions due to {alpha}–hydrogen
(192). Uses of Aldehydes and Ketones
(193). Uses of Carboxylic Acids
(194). Nomenclature of carboxyl group
(195). Structure of Carboxyl Group
(196). Method of preparation of Carboxylic acids
(197). Carboxylic acids Physical Properties
(198). Carboxylic acids Chemical reactions Involving Cleavage of O–H bond
(199). Carboxylic acids Chemical reactions involving Cleavage of C–OH Bond
(200). Carboxylic acids Chemical Reactions Involving –COOH Group
(201). Carboxylic Acid Chemical Substitution Reactions in the Hydrocarbon Part
(202). Uses of carboxylic acids
(203). Amines – Introduction
(204). Structure of Amines
(205). Classification of Amines
(206). Nomenclature of amines
(207). Preparation of Amines
(208). Physical properties of amines
(209). Chemical Reactions of amines
(210). Diazonium SALTS
(211). Method of preparation of diazonium salts
(212). Physical Properties of Diazonium salts
(213). Chemical reactions of diazonium
(214). Chemical reactions of diazonium Reactions involving displacement of nitrogen
(215). Chemical reactions of diazonium involving retention of diazo group
(216). Importance of diazonium salts in synthesis of aromatic compounds
(217). BIOMOLECULES

(218). Carbohydrates
(219). Classification of carbohydrates
(220). Monosaccharides
(221). Glucose
(222). Cyclic Structure of Glucose
(223). Fructose
(224). Disaccharides
(225). Polysaccharides
(226). Importance of carbohydrates
(227). Proteins
(228). Amino Acids
(229). Classification of Amino Acids
(230). Structure of Proteins
(231). Denaturation of Proteins
(232). Enzymes
(233). Mechanism of Enzyme Action
(234). Vitamins
(235). Classification of vitamins
(236). Nucleic Acids
(237). Chemical Composition of Nucleic Acids
(238). Structure of Nucleic Acids
(239). DNA Fingerprinting
(240). Biological Functions of Nucleic Acids
(241). James Dewey Watson
(242). Polymers – Introduction
(243). Classification of polymers Based on Source
(244). Classification of polymers Based on Structure of Polymers
(245). Classification based on mode of polymerisation
(246). Classification of Polymers Based on Molecular Forces
(247). Polymer Classification based on growth polymerisation
(248). Types of polymerisation reactions
(249). Addition polymerization or chain growth polymerization
(250). Condensation Polymerization or Step Growth polymerization
(251). Copolymerisation
(252). Rubber
(253). Molecular mass of polymers
(254). Biodegradable Polymers
(255). Polymers of Commercial Importance
(256). Chemistry in Everyday Life – Drugs
(257). Classification of Drugs
(258). Drug target interaction
(259). Receptors as Drug Targets
(260). Antacids

(261). Antihistamines
(262). Neurologically active drugs - Tranquilizers
(263). Neurologically active drugs - Analgesics
(264). Antimicrobials
(265). Antibiotics
(266). Antiseptics and disinfectants
(267). Antifertility Drugs
(268). Chemicals in food
(269). Cleansing Agents
(270). Types of soaps
(271). Why do soaps not work in hard water?
(272). Synthetic Detergents

51. Grade 12 Spelling Bee
(1). 12th Grade English Spelling Bee Practice

52. Bachelors 1 Human Anatomy & Physiology
(1). INTRODUCTION TO ANATOMY AND PHYSIOLOGY
(2). LEVELS OF ORGANIZATION
(3). BASIC LIFE PROCESS AND ORGAN SYSTEMS IN THE HUMAN BODY
(4). BASIC LIFE PROCESSES
(5). INTEGUMENTARY SYSTEM
(6). SKELETAL SYSTEM
(7). MUSCULAR SYSTEM
(8). NERVOUS SYSTEM
(9). ENDOCRINE SYSTEM
(10). CARDIOVASCULAR SYSTEM
(11). LYMPHATIC SYSTEM
(12). RESPIRATORY SYSTEM
(13). DIGESTIVE SYSTEM
(14). URINARY SYSTEM
(15). REPRODUCTIVE SYSTEM
(16). NON INVASIVE DIAGNOSTIC TECHNIQUES
(17). AUTOPSY
(18). HOMEOSTASIS
(19). CONTROL OF HOMEOSTASIS
(20). FEEDBACK SYSTEMS
(21). NEGATIVE FEEDBACK SYSTEM
(22). POSITIVE FEEDBACK SYSTEM
(23). HOMEOSTATIC IMBALANCE
(24). DIAGNOSIS OF A DISEASE
(25). BASIC ANATOMICAL POSITIONS
(26). DIRECTIONAL TERMS
(27). PLANES AND SECTIONS
(28). BODY CAVITIES
(29). THORACIC AND ABDOMINAL MEMBRANES
(30). ABDOMINOPELVIC REGIONS AND QUADRANTS
(31). AGING AND HOMEOSTASIS
(32). MEDICAL IMAGING

(33). COMMON MEDICAL IMAGING PROCEDURES
(34). RADIOGRAPHY
(35). MAGNETIC RESONANCE IMAGING (MRI)
(36). COMPUTED TOMOGRAPHY(CT)
(37). LIPID
(38). CORONARY(CARDIAC) COMPUTED TOMOGRAPHY ANGIOGRAPHY (CCTA) SCAN
(39). POSITRON EMISSION TOMOGRAPHY
(40). ENDOSCOPY
(41). RADIONUCLIDE SCANNING
(42). THE CHEMICAL LEVEL OF ORGANIZATION
(43). HOW MATTER IS ORGANIZED
(44). STRUCTURE OF ATOMS
(45). ATOMIC NUMBER AND MASS NUMBER
(46). HARMFUL AND BENEFICIAL EFFECTS OF RADIATION
(47). ATOMIC MASS
(48). IONS MOLECULES AND COMPOUNDS
(49). FREE RADICALS AND ANTIOXIDANTS
(50). CHEMICAL BONDS
(51). IONIC BONDS
(52). COVALENT BONDS
(53). HYDROGEN BONDS
(54). CHEMICAL REACTIONS
(55). FORMS OF ENERGY AND CHEMICAL REACTIONS
(56). ENERGY TRANSFER IN CHEMICAL REACTIONS
(57). ACTIVATION ENERGY
(58). CATALYST
(59). SYNTHESIS REACTIONS – ANABOLISM
(60). DECOMPOSITION REACTION – CATABOLISM
(61). EXCHANGE REACTIONS
(62). REVERSIBLE REACTIONS
(63). OXIDATION REDUCTION REACTIONS
(64). INORGANIC COMPOUNDS AND SOLUTIONS
(65). WATER
(66). WATER AS A SOLVENT
(67). WATER IN A CHEMICAL REACTION
(68). WATER AS A LUBRICANT
(69). SOLUTION, COLLOIDS AND SUSPENSIONS
(70). INORGANIC ACIDS BASES AND SALTS
(71). ACID BASE BALANCE– THE CONCEPT OF PH
(72). MAINTAINING PH: BUFFER SYSTEMS
(73). OVERVIEW OF ORGANIC COMPOUNDS
(74). CARBOHYDRATES
(75). MONOSACCHARIDES AND DISACCARIDES: THE SIMPLE SUGARS
(76). POLYSACCHARIDES
(77). FATTY ACIDS
(78). TRIGLYCERIDES
(79). ARTIFICIAL SWEETNERS

(80). FATTY ACIDS IN HEALTH AND DISEASE
(81). PHOSPHOLIPIDS
(82). STEROIDS
(83). OTHER LIPIDS
(84). PROTEINS
(85). AMINO ACIDS AND POLYPEPTIDES
(86). LEVELS OF STRUCTURAL ORGANIZATION IN PROTEINS
(87). ENZYMES
(88). NUCLEIC ACIDS
(89). DNA FINGERPRINTING
(90). ADINOSINE TRIPHOSPHATE

53. Bachelors 1 Biochemistry

(1). Biochemistry – Introduction
(2). Biomolecules
(3). Cellular Structures
(4). Distinct Domains of Life
(5). Classification of Organism on basis of Source of Energy
(6). Prokaryotic Cell
(7). Eukaryotic Cell
(8). Comparison of Eukaryotic and Prokaryotic cells
(9). Organelles
(10). Molecular Components of an E. coli Cell
(11). Biomolecules – Configuration and Conformation
(12). Physical Foundations of Cells
(13). Genetics in Cells
(14). Evolution & Biochemistry
(15). Biological Evolution
(16). Functional Genomics
(17). Water
(18). Weak attractions in Aqueous Systems
(19). Water as a Solvent
(20). Weak Interactions among Molecules
(21). Solutes Affect the Colligative Properties of Aqueous Solutions
(22). Ionization of Water
(23). pH scale
(24). The Ionization of Water Is Expressed by an Equilibrium Constant
(25). Weak Acids and Bases – Dissociation Constants
(26). Buffering against pH Changes in Biological Systems
(27). Henderson– Hasselbalch equation
(28). Weak Acids or Bases Buffer Cells and Tissues against pH Changes
(29). The Phosphate buffer system

(30). Blood, Lungs, and Buffer: The Bicarbonate Buffer System
(31). Acidosis – Diabetes, Starvation, etc..
(32). Water as a Reactant
(33). Amino Acids
(34). Structural Features of Amino Acids
(35). 20 Different Amino Acids that makes up Proteins
(36). Identification of Carbon in amino acids
(37). Optical Activity of Amino Acids
(38). Absolute configuration of asymmetric carbon atoms
(39). Classification of Amino Acids by R groups
(40). Uncommon Amino Acids
(41). Amino Acids Can Act as Acids and Bases
(42). Amino Acids Have Characteristic Titration Curves
(43). Titration Curves Predict the Electric Charge of Amino Acids
(44). Effect of the chemical environment on pKa
(45). Amino Acids Differ in Their Acid–Base Properties
(46). Peptides and Proteins
(47). Ionization Behavior of Peptides
(48). Biologically Active Peptides and Polypeptides Sizes
(49). Polypeptides Have Characteristic Amino Acid Compositions
(50). Conjugated Proteins
(51). Levels of Protein Structure
(52). Proteins Can Be Separated and Purified
(53). Ion Exchange chromatography
(54). Size Exclusion Chromatography
(55). Affinity Chromatography
(56). HPLC – high–performance liquid chromatography
(57). Electrophoresis
(58). Unseparated Proteins Can Be Quantified
(59). Covalent Structures of Protein
(60). Sequencing of Proteins
(61). Edman Degradation
(62). Sequencing of Large Proteins
(63). Investigating Proteins with Mass Spectrometry – MALDI MS & ESI MS
(64). Tandem MS or MS/MS
(65). Liquid chromatography (LC)
(66). Chemical synthesis of Proteins
(67). Protein Sequencing and Evolution

(68). Blosum62 Table
(69). Signature Sequences
(70). Structure of Protein
(71). Stabilizing a protein
(72). The Peptide Bond
(73). Ramachandran plot
(74). Secondary Structure of Proteins
(75). Protein Tertiary and Quaternary Structures
(76). Fibrous Proteins
(77). α Keratin
(78). Collagen
(79). Silk Fibroin
(80). Functional Diversity in Globular Proteins
(81). Myoglobin
(82). Methods for Determining the Three-Dimensional Structure of a Protein
(83). Globular Proteins – motifs & domains
(84). Range of Protein Quaternary Structures
(85). Arrangement of Multimetric Proteins in Symmetrical Patterns
(86). Protein Denaturation and Renaturation
(87). Folding of Polypeptides
(88). Defects in protein folding
(89). Assisted Folding
(90). Reversible Binding of a Protein
(91). Oxygen Binding Proteins
(92). Protein–Ligand Interactions – Quantitative
(93). Structure of Protein in Ligand Binding
(94). Structure of Hemoglobin
(95). Transport of Oxygen in Blood
(96). Binding of Oxygen to Hemoglobin
(97). Sigmoid Binding Curve
(98). Models for Cooperative Binding – MWC (concerted), sequential
(99). Transport of H+ and CO2 by Hemoglobin
(100). Sickle Cell Anemia
(101). The Immune System and Immunoglobulin
(102). Cells & Proteins involved in Immunity
(103). Molecules involved in Immunity systems
(104). Major Histocompatibility Complex (MHC) Protein
(105). Classification of Antibody
(106). Antibody–Antigen Binding
(107). Phagocytosis of an antibody–bound virus by a macrophage
(108). Antibody–Antigen Interaction Analysis
(109). ELISA

(110). Protein Interactions Modulated by Chemical Energy
(111). Myosin
(112). Actin
(113). Molecular Mechanism of Muscle Contraction
(114). ENZYMES
(115). Oxidoreductase
(116). Transferase
(117). Hydrolase
(118). Lyases
(119). Isomerase
(120). Ligase
(121). How enzymes work?
(122). Enzyme Kinetics
(123). Michaelis Menten Equation
(124). The Double-Reciprocal Plot
(125). Factors that affect activity of Enzymes - Concentration of Enzymes
(126). Factors that affect activity of Enzymes - Concentration of Substrate
(127). Factors that affect activity of Enzymes - Enzyme Kinetics
(128). Factors that affect activity of Enzymes - Temperature
(129). Factors that affect activity of Enzymes - pH
(130). Enzyme catalysis
(131). Acid-Base Catalysis
(132). Covalent Catalysis
(133). Metal ion Catalysis
(134). Enzyme Inhibition
(135). Reversible Inhibition
(136). Effect of Reversible inhibition on Kinetics of Enzyme-catalyzed Reactions
(137). Irreversible Inhibition
(138). Carbohydrates
(139). Monosaccharides
(140). Hexose Derivatives
(141). Diagnosis of Diabetes Mellitus; Fehling's Reaction
(142). Disaccharides
(143). Polysaccharides
(144). Homopolysaccharides used as stored form of fuels
(145). Homopolysaccharides in Structural Roles
(146). Folding of Homopolysaccharides
(147). Heteropolysaccharides Structural role in Bacterial and Algal Cell Walls
(148). Types of protein interactions with S

domains of heparan sulfate
(149). Heteropolysaccharides in Extracellular Matrix
(150). Glycoconjugates
(151). Proteoglycans in the Cell Surface and Extracellular Matrix
(152). Oligosaccharide Linkages in Glycoproteins
(153). Glycolipids and Lipopolysaccharides Are Membrane Components
(154). The Sugar Code
(155). Lectins
(156). Selectins
(157). Bacterial Adhesion
(158). Lectin–Carbohydrate Interactions
(159). Roles of oligosaccharides in recognition and adhesion at the cell surface
(160). Working with Carbohydrates
(161). Nucleotides
(162). Nucleotides – Structure
(163). Nucleotide and Nucleic Acid Nomenclature
(164). Some minor purine and pyrimidine bases
(165). Linking of Nucleotides into Nucleic Acids
(166). Hydrolysis of RNA under alkaline conditions
(167). Three–Dimensional Structure of Nucleic Acids
(168). Absorption Spectra of some Nucleotides
(169). Nucleic Acids
(170). The DNA
(171). Structure of DNA
(172). Double Helix
(173). Forms of DNA
(174). Unusual Structures in DNA
(175). RNA
(176). Messenger RNA (mRNA)
(177). Ribosomal RNA (rRNA)
(178). Transfer RNA (tRNA)
(179). Three–Dimensional Structures of RNA
(180). Nucleic Acid Chemistry
(181). Denaturing of Double–Helical DNA and RNA
(182). Hybrid Duplexes
(183). Nonenzymatic Transformations
(184). DNA sequencing by the Sanger method
(185). Automating DNA sequencing reactions
(186). Nucleotides as Energy Carriers
(187). Adenine Nucleotides Are Components of

Many Enzyme Cofactors
(188). Nucleotides as Regulatory Molecules
(189). DNA BASED INFORMATION TECHNOLOGIES
(190). DNA Cloning
(191). Some Enzymes Used in Recombinant DNA Technology
(192). Restriction Endonucleases
(193). Sticky ends And Blunt ends
(194). DNA Ligases
(195). Plasmids as Cloning Vectors
(196). Bacteriophages
(197). Bacterial Artificial Chromosomes (BACs)
(198). Yeast Artificial Chromosomes (YACs)
(199). Types of vectors
(200). DNA hybridization
(201). Product of the cloned gene
(202). Alterations in Cloned Genes
(203). DNA Libraries
(204). Specialized DNA Libraries
(205). The Polymerase Chain Reaction
(206). Human Genome Project
(207). DNA Fingerprinting
(208). How much does one human differs from another?
(209). Proteomes & Protein Function
(210). Sequence or Structural Relationships Provide Information on Protein Function
(211). Cellular Function of a Gene
(212). DNA Microarrays
(213). Protein–Protein Interactions
(214). Genome Alterations – Cloning in Plants
(215). Genome Alterations – Manipulation of Animal Cell Genomes
(216). Use of retroviral vectors in mammalian cell cloning
(217). Recombinant DNA Technology Yields New Products and Challenges
(218). CRISPR/Cas Systems
(219). LIPIDS
(220). Storage Lipids
(221). Triacylglycerols (triglycerides) Are Fatty Acid Esters of Glycerol
(222). Triacylglycerols Provide Stored Energy and Insulation
(223). Triacylglycerols in Food
(224). Waxes Serve as Energy Stores and Water Repellents
(225). Structural Lipids in Membranes
(226). Glycerophospholipids
(227). Sphingolipids

(228). Sterols
(229). Lipids as Signals, Cofactors, and Pigments
(230). Phosphatidylinositols and Sphingosine Derivatives Act as Intracellular Signals
(231). Eicosanoids
(232). Steroids
(233). Plants Use Phosphatidylinositols, Steroids, and Eicosanoidlike Compounds in Signaling
(234). Vitamins
(235). Vitamin D
(236). Vitamin A (retinol)
(237). Vitamin E
(238). Vitamin K
(239). Warfarin & Ubiquinone
(240). Dolichols
(241). Working with Lipids
(242). Adsorption Chromatography
(243). Thin-layer Chromatography
(244). Gas-Liquid Chromatography
(245). High performance liquid chromatography (HPLC)
(246). Mass Spectrometry Reveals Complete Lipid Structure
(247). Biological Membranes
(248). The Composition and Architecture of Membranes
(249). Folding of proteins
(250). Lipids orientation in membrane
(251). Basic Structural Element of Membranes
(252). Bilayer
(253). Plasma membrane of erythrocytes
(254). Three Types of Membrane Proteins
(255). Many Membrane Proteins Span the Lipid Bilayer
(256). Integral Proteins
(257). Annular lipids
(258). Topology of an Integral Membrane
(259). Hydropathy index
(260). Tyr and Trp residues presence
(261). Covalently Attached Lipids Anchor Some Membrane Proteins
(262). Membrane Dynamics
(263). Paradoxical effects on bilayer fluidity
(264). Lipids and Proteins Diffuse Laterally in the Bilayer
(265). Sphingolipids and Cholesterol Cluster Together in Membrane Rafts
(266). Membrane Curvature and Fusion
(267). Fusion of membranes

(268). Integral Proteins of the Plasma Membrane – Integrins, Cadherins & Selectins
(269). Solute Transport across Membranes
(270). Transporters and Ion Channels
(271). The Glucose Transporter of Erythrocyte
(272). Model of glucose transport into erythrocytes by GLUT1.
(273). Cotransport systems
(274). Active Transport Results in Solute Movement against a Concentration or Electrochemical Gradient
(275). Mechanism for P-type ATPase
(276). V-Type and F-Type ATPases Are ATP-Driven Proton Pumps
(277). ABC Transporters
(278). Secondary Active Transport
(279). Lactose transporter
(280). Aquaporins
(281). Ion-Selective Channels
(282). Structure of a K+ Channel
(283). Gated Ion Channels Are Central in Neuronal Function
(284). Defective Ion Channels Can Have Severe Physiological Consequences
(285). General Features of Signal Transduction
(286). Basic receptors types
(287). G Protein Coupled Receptors and Second Messengers
(288). The β -Adrenergic Receptor System Acts through the Second Messenger cAMP
(289). Epinephrine cascade
(290). Termination of the β -Adrenergic Response
(291). β -Adrenergic Receptor Is Desensitized by Phosphorylation and by Association with Arrestin
(292). Cyclic AMP as Second Messenger
(293). G Proteins as Self-Limiting Switches
(294). Diacylglycerol, Inositol Trisphosphate, and Ca2+
(295). Calcium Is a Second Messenger
(296). Receptor Tyrosine Kinases
(297). Insulin Signaling
(298). JAK-STAT Signaling System
(299). Cross Talk among Signaling Systems
(300). Receptor Guanylyl Cyclases, cGMP, and Protein Kinase G
(301). Multivalent Adaptor Proteins and Membrane Rafts
(302). Fourth structure of signaling proteins
(303). MAPK cascade
(304). Segregation Signaling Proteins

(305). Ion Channels Underlie Electrical Signaling
(306). Neuron Signaling
(307). Acetylcholine Receptor
(308). Neurons Receptor Channels
(309). Toxins
(310). Integrins
(311). Regulation of Transcription by Nuclear Hormone Receptors
(312). Bacterial Signaling in a Two-Component System
(313). Signaling Systems of Plants
(314). Plants Detection of Ethylene
(315). Receptor Like Kinases (RLKs)
(316). Sensory Transduction in Vision
(317). Vertebrate Olfaction and Gustation
(318). GPCRs of the Sensory Systems
(319). Regulation of the Cell Cycle
(320). Levels of Cyclin-Dependent Protein Kinases Oscillate
(321). Regulation of CDKs by Phosphorylation
(322). Controlled Degradation of Cyclin
(323). Regulated Synthesis of CDKs and Cyclins
(324). CDKs Regulating Cell Division
(325). Tumors and cancer
(326). Oncogenes
(327). Tumor suppressor genes
(328). Stability genes
(329). Apoptosis

54. Bachelors 1 Pharmacology
(1). GENERAL PHARMACOLOGY
(2). HISTORY OF PHARMACOLOGY
(3). TERMINOLOGY
(4). NATURE OF DRUGS
(5). SOURCES OF DRUGS
(6). DRUG NOMENCLATURE
(7). DRUG COMENDIA
(8). ESSENTIAL DRUG CONCEPTS
(9). PRESCRIPTION AND NON PRESCRIPTION DRUGS
(10). ORPHAN DRUGS
(11). DOSAGE FORM OF DRUGS
(12). SOLID DOSAGE FORM OF DRUGS
(13). LIQUID DOSAGE FORM OF DRUGS
(14). SEMI SOLID DOSAGE FORM OF DRUGS
(15). ROUTE OF DRUG ADMINISTRATION
(16). LOCAL ROUTE OF DRUG ADMINISTRATION
(17). SYSTEMIC ROUTE OF DRUG ADMINISTRATION
(18). PHARMACOKINETICS – MEMBRANE TRANSPORT, ABSORPTION AND DISTRIBUTION OF DRUGS
(19). BIOLOGICAL MEMBRANE

(20). PASSIVE DIFFUSION
(21). FILTRATION
(22). SPECIALIZED TRANSPORT

55. Bachelors 2 Biochemistry

(1). Carbon Cycling
(2). Metabolism
(3). Metabolic Pathways
(4). Laws of Thermodynamics
(5). Bioenegetics and Thermodynamics
(6). Foundational Principles of Metabolism
(7). Standard Free-Energy Change
(8). Standard free-energy
(9). Free-Energy Changes
(10). Chemical Logic
(11). Biochemical Reactions
(12). Reactions That Make or Break Carbon-Carbon Bonds
(13). Internal Rearrangements, Isomerizations, and Eliminations
(14). Free-Radical Reactions
(15). Group Transfer Reactions
(16). Oxidation-Reduction Reactions
(17). Phosphoryl Group Transfers and ATP
(18). ATP Hydrolysis
(19). Other Phosphorylated Compounds and Thioesters
(20). ATP Provides Energy by Group Transfers
(21). ATP Donates Phosphoryl, Pyrophosphoryl, and Adenylyl Groups
(22). Bioluminescence in Firefly
(23). Assembly of Informational Macromolecules
(24). Transphosphorylations between Nucleotides
(25). Inorganic Polyphosphate Is a Potential Phosphoryl Group Donor
(26). Biological Oxidation-Reduction Reactions
(27). Reduction Potentials
(28). Universal Electron Carriers
(29). Soluble Electron Carriers
(30). Flavin Nucleotides
(31). Regulation of Metabolic Pathways
(32). Homeostasis
(33). Enzyme Regulation
(34). Points of Regulation
(35). Metabolic Regulation
(36). Glucose
(37). Glycolysis
(38). The Preparatory Phase of Glycolysis
(39). The Payoff Phase of Glycolysis
(40). Fates of Pyruvate

(41). Regulation of Glycolysis
(42). Feeder Pathways for Glycolysis
(43). Glycogen is Degraded by Phosphorolysis
(44). Dietary Polysaccharides and Disaccharides
(45). Lactose Digestion and Lactose Intolerance
(46). Glycolytic Pathway of Other Monosaccharides
(47). Fates of Pyruvate
(48). Lactic Acid Fermentation
(49). Alcohlic Fermentation
(50). Thiamine pyrophosphate (TPP) and its role in pyruvate decarboxylation
(51). Fermentation Products
(52). Gluconeogenesis
(53). Gluconeogenesis and glycolysis
(54). The three irreversible steps of gluconeogenesis
(55). Gluconeogenesis Is Energetically Expensive, but Essential
(56). Citric Acid Cycle Intermediates
(57). Regulation of Glycolysis and Gluconeogenesis
(58). Hexokinase Isozymes Are Affected Differently by Their Product, Glucose 6-Phosphate
(59). Phosphofructokinase-1 and Fructose 1,6-Bisphosphatase Are Reciprocally Regulated
(60). Fructose 2,6-Bisphosphate Is a Potent Allosteric Regulator of PFK-1 and FBPase-1
(61). Xylulose 5-Phosphate Is a Key Regulator of Carbohydrate and Fat Metabolism
(62). Pyruvate Kinase Is Allosterically Inhibited by ATP
(63). Conversion of Pyruvate to Phosphoenolpyruvate
(64). Transcriptional Regulation Changes the Number of Enzyme Molecules
(65). Pentose Phosphate Pathway of Glucose Oxidation
(66). Pentose Phosphate Pathway – Oxidative Phase
(67). Pentose Phosphate Pathway – Nonoxidative Phase
(68). Glucose 6-Phosphate in Glycolysis and the Pentose Phosphate Pathway
(69). Thiamine Deficiency – Beriberi & Wernicke-Korsakoff syndrome
(70). Metabolism of Glycogen
(71). Glycogen Metabolism in Animals

(72). Structure and Function of Glycogen
(73). Glycogenolysis
(74). Glycogenesis
(75). Regulation of Metabolic Pathways
(76). Regulatory Mechanisms Evolved under Strong Selective Pressures
(77). Regulatory Enzymes Respond to Changes in Metabolite Concentration
(78). Enzyme Activity Can Be Altered in Several Ways
(79). Isozymes
(80). Coordinated Regulation of Glycolysis and Gluconeogenesis
(81). Hexokinase Isozymes of Muscle and Liver Are Affected Differently by Their Product, Glucose 6-Phosphate
(82). Phosphofructokinase-1 Is under Complex Allosteric Regulation
(83). Pyruvate Kinase Is Allosterically Inhibited by ATP
(84). Regulation of Gluconeogenesis
(85). Coordinated Regulation of Glycogen Synthesis and Breakdown
(86). Glycogen Synthase Is Also Regulated by Phosphorylation and Dephosphorylation
(87). Glycogen Synthase Kinase 3 Mediates the Actions of Insulin
(88). Glycogen-targeting protein GM
(89). Allosteric and Hormonal Signals Coordinate Carbohydrate Metabolism
(90). Analysis of Metabolic Control
(91). THE CITRIC ACID CYCLE (Krebs cycle)
(92). Production of Acetyl-CoA
(93). The Pyruvate Dehydrogenase (PDH) Complex
(94). Oxidative decarboxylation of pyruvate to acetyl-CoA by the PDH complex
(95). Reactions in the Citric Acid Cycle
(96). Enzymes & Their Names
(97). The Energy of Oxidations in the Cycle
(98). Citric Acid Cycle Components Are Important Biosynthetic Intermediates
(99). Anaplerotic Reactions Replenish Citric Acid Cycle Intermediates
(100). Role of biotin in the reaction catalyzed by pyruvate carboxylase
(101). Regulation of the Citric Acid Cycle
(102). The Glyoxylate Cycle
(103). Citric Acid and Glyoxylate Cycles Are Coordinately Regulated
(104). FATTY ACID CATABOLISM
(105). Digestion, Mobilization, and Transport

mitochondria
(170). Regulation of the ATP producing pathways
(171). Mitochondrial Genes: Their Origin and the Effects of Mutations
(172). Mitochondria Evolved from Endosymbiotic Bacteria
(173). The Role of Mitochondria in Apoptosis and Oxidative Stress
(174). PHOTOSYNTHESIS: HARVESTING LIGHT ENERGY
(175). General Features of Photophosphorylation
(176). Chloroplasts
(177). Light Drives Electron Flow in Chloroplasts
(178). Light Absorption
(179). Chlorophyll
(180). Absorption of visible light by photopigments
(181). Photosystems
(182). Exciton and electron transfer
(183). The Central Photochemical Event: Light-Driven Electron Flow
(184). Reaction Centers in Plants
(185). Plant Reaction Center Mechanism
(186). Photosystem II of the cyanobacterium Synechococcus
(187). The supramolecular complex of PSI and its associated antenna chlorophylls
(188). Localization of PS I and PS II in thylakoid membranes
(189). The Cytochrome b6f Complex
(190). Cytochrome b6f Complex and Cytochrome c6 in Both Oxidative Phosphorylation and Photophosphorylation
(191). Water Is Split by the Oxygen-Evolving Complex
(192). ATP Synthesis by Photophosphorylation
(193). Cyclic Electron Flow Produces ATP but Not NADPH or O2
(194). The ATP Synthase of Chloroplasts Is Like That of Mitochondria
(195). Halophilic Bacteria
(196). CARBOHYDRATE BIOSYNTHESIS IN PLANTS AND BACTERIA
(197). Photosynthetic Carbohydrate Synthesis
(198). Plastids
(199). Calvin Cycle
(200). Stoichiometry of CO2 assimilation in the Calvin cycle
(201). Transport System

(202). Four Enzymes of the Calvin Cycle Are Indirectly Activated by Light
(203). Photorespiration
(204). The glycine decarboxylase system
(205). C4 pathway
(206). CAM Plants
(207). Biosynthesis of Starch and Sucrose
(208). Synthesis of Starch
(209). Sucrose Synthesis
(210). Regulation of Starch and Sucrose Synthesis
(211). Synthesis of Cell Wall Polysaccharides: Plant Cellulose and Bacterial Peptidoglycan
(212). Cellulose Synthesis
(213). Structure of cellulose synthase
(214). Bacterial Cell Wall Synthesis
(215). Integration of Carbohydrate Metabolism in the Plant Cell
(216). Gluconeogenesis Converts Fats and Proteins to Glucose in Germinating Seeds
(217). Pools of Common Intermediates Link Pathways in Different Organelles
(218). LIPID BIOSYNTHESIS
(219). Biosynthesis of Fatty Acids and Eicosanoids
(220). Sequence of events during synthesis of a fatty acid
(221). The Fatty Acid Synthase Reactions Are Repeated to Form Palmitate
(222). The Fatty Acid Synthase of Some Organisms Consists of Multifunctional Proteins
(223). Fatty Acid Synthesis Occurs in the Cytosol of Many Organisms but in the Chloroplasts of Plants
(224). Acetate Is Shuttled out of Mitochondria as Citrate
(225). Fatty Acid Biosynthesis Is Tightly Regulated
(226). Long-Chain Saturated Fatty Acids Are Synthesized from Palmitate
(227). Desaturation of Fatty Acids Requires a Mixed-Function Oxidase
(228). Enzymes For Oxidation-Reduction Reactions With Molecular Oxygen
(229). Formation of Eicosanoids
(230). Biosynthesis of Triacylglycerols
(231). Regulation of Triacylglycerol Biosynthesis by Hormones
(232). Glyceroneogenesis
(233). Regulation of Glyceroneogenesis
(234). Biosynthesis of Membrane Phospholipids

(235). Cells Have Two Strategies for Attaching Phospholipid Head Groups
(236). Phospholipid Synthesis in E. coli Employs CDP–Diacylglycerol
(237). Eukaryotes Synthesize Anionic Phospholipids from CDP–Diacylglycerol
(238). Eukaryotic Pathways to Phosphatidylserine, Phosphatidylethanolamine, and Phosphatidylcholine Are Interrelated
(239). Plasmalogen Synthesis Requires Formation of an Ether-Linked Fatty Alcohol
(240). Sphingolipid and Glycerophospholipid Synthesis Share Precursors and Some Mechanisms
(241). Synthesis of Cholesterol
(242). Fates of Cholesterol
(243). Cholesterol and Other Lipids Are Carried on Plasma Lipoproteins
(244). Cholesteryl Esters Enter Cells by Receptor-Mediated Endocytosis
(245). Regulation of Cholesterol Biosynthesis
(246). Human Diseases due to Cholesterol
(247). Formation of Steroid Hormones
(248). Intermediates in Cholesterol Biosynthesis Have Many Alternative Fates
(249). Nitrogen Cycle
(250). Nitrogen Fixation
(251). Nitrogen-fixing nodules
(252). Ammonia Is Incorporated into Biomolecules through Glutamate and Glutamine
(253). Glutamine Synthetase Is a Primary Regulatory Point in Nitrogen Metabolism
(254). Biosynthesis of Amino Acids
(255). α -ketoglutarate
(256). 3-Phosphoglycerate
(257). Oxaloacetate & Pyruvate
(258). Phosphoenolpyruvate and erythrose 4-phosphate
(259). Ribose 5-Phophate
(260). Allosteric Regulation of Amino Acid Biosynthesis
(261). Molecules Derived from Amino Acids
(262). Amino Acids Are Precursors of Creatine and Glutathione
(263). Aromatic Amino Acids Are Precursors of Many Plant Substances
(264). Biological Amines Are Products of Amino Acid Decarboxylation
(265). Arginine Is the Precursor for Biological Synthesis of Nitric Oxide
(266). Biosynthesis and Degradation of

Nucleotides
(267). De Novo Purine Nucleotide Synthesis
(268). Purine Nucleotide Biosynthesis Is Regulated by Feedback Inhibition
(269). De novo synthesis of pyrimidine nucleotides
(270). Pyrimidine Nucleotide Biosynthesis Is Regulated by Feedback Inhibition
(271). Nucleoside Monophosphates Are Converted to Nucleoside Triphosphates
(272). Ribonucleotides Are the Precursors of Deoxyribonucleotides
(273). Regulation of ribonucleotide reductase
(274). Thymidylate Is Derived from dCDP and dUMP
(275). Degradation of Purines and Pyrimidines Produces Uric Acid and Urea
(276). Aminoacid Salvage Pathways
(277). Many Chemotherapeutic Agents Target Enzymes in the Nucleotide Biosynthetic Pathways
(278). Chromosomal Elements
(279). DNA Molecules Are Much Longer Than the Cellular Packages That Contain Them
(280). Eukaryotic Genes and Chromosomes Are Very Complex
(281). Types of Sequences in Human Genome
(282). DNA Supercoiling
(283). Most Cellular DNA Is Underwound
(284). DNA Underwinding is defined by Topological Linking Number
(285). Topoisomers
(286). Topoisomerases Catalyze Changes in the Linking Number of DNA
(287). DNA Compaction Requires a Special Form of Supercoiling
(288). The Structure of Chromosomes
(289). Histones Are Small Basic Proteins
(290). Nucleosomes Are the Fundamental Organizational Units of Chromatin
(291). Nucleosomes Are Packed into Successively Higher Order Structures
(292). Condensed Chromosome Structures Are Maintained by SMC Proteins
(293). Bacterial DNA
(294). Hormones: Diverse Structures for Diverse Functions
(295). The Discovery and Purification of Hormones
(296). Hormones Act through Specific High-Affinity Cellular Receptors

(431). Posttranscriptional Gene Silencing Is Mediated by RNA Interference
(432). Development Is Controlled by Cascades of Regulatory Proteins
(433). Maternal Genes
(434). Segmentation Genes
(435). Homeotic Genes

56. GRE GMAT English
(1). Word Meanings Set 1
(2). Word Meanings Set 2
(3). Word Meanings Set 3
(4). Word Meanings Set 4
(5). Word Meanings Set 5
(6). Word Meanings Set 6
(7). Word Meanings Set 7
(8). Word Meanings Set 8
(9). Word Meanings Set 9
(10). Word Meanings Set 10
(11). Word Meanings Set 11
(12). Word Meanings Set 12
(13). Word Meanings Set 13
(14). Word Meanings Set 14
(15). Word Meanings Set 15
(16). Word Meanings Set 16
(17). Word Meanings Set 17
(18). Word Meanings Set 18
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57. Learn English 学英语 Engels leren Matuto ng Ingles Apprendre l'anglais Lerne Englisch Μαθαίνω Αγγλικά अंग्रेजी सीखें ইংরেজি শেখা 英語を習う 영어를 배우다 Belajar English انگلیسی یاد بگیر تعلم الإنجليزي Выучить английский язык Учити енглески Jifunze Kiingereza Kọ èdè Gẹ̀ẹ́sì Funda isingisi Leer Engels Mụta Bekee ஆங்கிலம் கற்கவும் ఆంగ్లము నేర్చుకో เรียนภาษาอังกฤษ Học tiếng Anh

(1). Letters – A B C D ....
(2). Alphabets and Basic Words
(3). Words – Adjectives
(4). Words – Animals
(5). Words – Places
(6). Words – Body
(7). Words – Clothes
(8). Words – Colors
(9). Words – Verbs
(10). Words – Family
(11). Words – Food
(12). Words – Fruits
(13). Words – HOUSE
(14). Words – Jobs
(15). Words – Fun
(16). Words – Music Instruments
(17). Words – Nature
(18). Words – Numbers
(19). Words – People
(20). Words – School Things
(21). Words – Sports
(22). Words – TECHNOLOGY
(23). Words – Transport
(24). Words – Vegetables
(25). Question Words
(26). Pronouns
(27). Adjectives
(28). To Be

(29). "Have" Expressions
(30). Early Writing Topics
(31). The Present Simple
(32). There Is - There Are
(33). Possessive 'S
(34). Can
(35). Some and Any
(36). Capital Letters
(37). Plurals
(38). Prepositions - Introduction
(39). Articles
(40). Writing Topics
(41). Simple Verb Patterns
(42). Past Simple "To Be"
(43). Past Simple
(44). Whose
(45). Could
(46). Spelling
(47). More on Prepositions
(48). Quantifiers
(49). 'For', 'Since' and 'Ago'
(50). 'Will' or 'Going To'
(51). "Have To" and "Must"
(52). 'Have' and 'Have Got'
(53). Question Tags
(54). -ing And -ed Adjectives
(55). Enough
(56). ENGLISH ESSAY TOPICS
(57). Present Continuous
(58). Comparatives and Superlatives
(59). Adverbs
(60). 'Going To' and Present Continuous for Future
(61). Prepositions Of Time
(62). Present Simple For Future
(63). Contractions
(64). Past Continuous Structure
(65). Past Continuous Use
(66). Zero Conditional
(67). First Conditional
(68). Modal Verbs
(69). 'Like' as Verb and Preposition
(70). Compound Nouns
(71). 'So' and 'Such'
(72). Needn't
(73). Subject And Object Questions
(74). ENGLISH ESSAY TOPICS
(75). Present Perfect Structure
(76). Present Perfect Use
(77). Present Simple, Past Simple or Present