

Udvas Academic and Admission Care

Class Nine Academic Program-2024

Course Details

| Sl. No. | Subject | Total Chapters | Number of Lectures | Number of exams |
|---------|-------------|---------------------------|--------------------|--|
| 01 | Mathematics | 09 | 72 | <ul style="list-style-type: none"> 140 Daily Exams 23 Chapter-wise Exams 02 Subject Final Exams |
| 02 | Science | 14 | 68 | |
| | | Total Lecture- 140 | | |

Science

| Chapter Name | Lecture | Chapterwise Discussion Topics |
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| Chapter-1 Force, Pressure and Energy | S-01 | Newton's First Law: Static inertia and Dynamic Inertia, Newton's first law: Definition and Explanation |
| | S-02 | Newton's Second Law: Concept of momentum, Rate of change, Newton's second law: Definition and Explanation |
| | S-03 | Concept of fundamental force, Newton's Third Law |
| | S-04 | Gravitational Force: From information to law, Definition and Explanation of Newton's law of gravitation, Concept of weight |
| | S-05 | Pressure: Definition and Expression and units, Archimedes' Principle and Buoyancy, Floating or sinking of objects |
| | S-06 | Energy: Kinetic and potential energy, Conservation of mechanical energy, Solving various mathematical problems |
| Chapter-2 Temperature and Heat | S-07 | Heat: Heat conduction, Convection, Radiation, Specific heat, Heat flow, Temperature and internal energy: Concept of Thermal Energy, Motion of Molecules and Temperature, Concept of Internal Energy |
| | S-08 | Thermal Expansion of matters: Expansion of solids |
| | S-09 | Expansion in liquids |
| | S-10 | Diffusion of gaseous substances |
| | S-11 | Calorimetry: Principles of Calorimetry, Effect of heat on change of State of Matter |
| Chapter-3 Modern Physics | S-12 | Thermodynamics, Scientist Joule's Experiment |
| | S-13 | Quantum mechanics, Wave-particle duality, De Broglie Wavelength, Heisenberg's Uncertainty Principle |
| | S-14 | Particle Physics, Atoms are not the Last Word, Standard Model |
| Chapter 4: States of Matter | S-15 | Theory of relativity, Time dilation, Space Contraction, Relative Momentum and Energy |
| | S-16 | Kinetic Theory of Particles |
| | S-17 | Diffusion, Effusion |

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| | S-18 | Distillation |
| | S-19 | Sublimation |
| Chapter 5: Structure of Matter | S-20 | Particles of an atom, Atomic Model |
| | S-21 | Rutherford's Atomic Model |
| | S-22 | Bohr's Atomic Model |
| | S-23 | Electron configuration of atoms, Concept of orbital |
| | S-24 | Principles of Electronic Configuration in atoms, Exceptions to the general rules of Electronic Configuration |
| | S-25 | Atomic Mass and Relative Atomic Mass, Relative Molecular Mass |
| Chapter 6: Periodic Table | S-26 | Concept and background of periodic table, Characteristics of Periodic Table |
| | S-27 | Determining the position of Elements in the Periodic Table, Some Exceptions to the Periodic Table |
| | S-28 | Periodic Properties of Elements |
| | S-29 | Periodic Properties of Elements, Importance of Periodic Table |
| Chapter 7: Chemical Bonds | S-30 | Valency, Radicals |
| | S-31 | Chemical formula of compound |
| | S-32 | Inert Gas and Stability, Chemical Bond |
| | S-33 | Ionic bond, Metallic bond |
| | S-34 | Covalent bond |
| | S-35 | Ores, Extraction of metals and Alloys |
| Chapter 8: Genetics and Heredity | S-36 | Genetics |
| | S-37 | Gregor Johann Mendel and his research |
| | S-38 | Observation of dominant and recessive characteristics in living organisms (up to the end of Mendel's First Law) |
| | S-39 | Observation of dominant and recessive characteristics in organisms (Mendel's second law), Relationship between Genetics and Heredity |
| Chapter 9: Bio molecules | S-40 | Biomolecule |
| | S-41 | Carbohydrates |
| | S-42 | Nucleic acid, DNA |
| | S-43 | RNA |
| | S-44 | Protein |
| | S-45 | Lipids, Interrelationship of Biomolecules |
| Chapter 10: Photosynthesis | S-46 | Photosynthesis, The conversion of Solar energy into Chemical energy |
| | S-47 | The site of Photosynthetic Process |
| | S-48 | Photosynthetic process, Light Dependent Phase |
| | S-49 | Light Independent Phase, Importance of Photosynthesis |

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| Chapter 11: Human Body Systems | S-50 | Nervous system, Central nervous system, Peripheral nervous system |
| | S-51 | Neuron |
| | S-52 | Physical problems related to neurological disorders |
| | S-53 | Endocrine System, Some Important Glands of Human Body, Some Hormonal Abnormalities, Important Hormones in Human Body |
| | S-54 | Blood circulation, Blood |
| | S-55 | Blood vessel |
| | S-56 | Structure and function of heart, some diseases of Blood circulatory system |
| | S-57 | Defence Mechanism of the human body, First line of Defence |
| | S-58 | Second line of Defence |
| | S-59 | Third line of Defence |
| Chapter 12: Ecosystem | S-60 | Coexistent Habitats of Various Organisms |
| | S-61 | Ecology and Ecosystem, Ecosystem |
| | S-62 | Population Ecology, Food Cycle, Energy Pyramid, Food Chain, Food Web, Nutrient Flow in Ecosystem, Concept of Energy Pyramid |
| | S-63 | Water cycle, Oxygen cycle, Nitrogen cycle, Adaptation of Organisms to different environments |
| Chapter-13: Earth and Universe | S-64 | Age of Earth compared to Universe, Geological time Scale, Units of the Geological Time Scale, Formation and Change of the Geological Time Scale, Mass Extinctions |
| | S-65 | Fossils, Body Fossil, Mold and Cast Fossils, Trace Fossils, Permineralized Fossils, Earth's Changes over Time, Changes in Earth's Surface Over Geological Time, Changes in Earth's Atmosphere Over Geological Time, Changes in Earth's Biota through Geological Time |
| Chapter-14 The Environment and Landforms | S-66 | Ground water: Unconfined Aquifer, Confined Aquifers, Different types of landform, Endogenic processes: Diastrophism |
| | S-67 | Volcanism, Oceanic volcanoes |
| | S-68 | Exogenic Processes: Physical Weathering, Transportation, Nature of Biodiversity in various Landforms |

Mathematics

| Chapter Name | Lecture | Chapterwise Discussion Topics |
|---|---------|--|
| Chapter-01: Sets in daily life | M-01 | Importance of sets in mathematics, Expressing of sets, Methods of writing sets, Methods of expressing sets |
| | M-02 | Roaster Method or Tabular Method, Set Builder Method |
| | M-03 | Types of sets, Universal Set, Finite Set, Infinite Set, Empty Set |
| | M-04 | Subset, Equal set, Proper subset, Sets of sets, Power set, Number of elements of a set |
| | M-05 | Operation of sets, Union of Sets, Intersection of Sets, Difference of two sets |
| | M-06 | Complement of a Set, Disjoint Set, De Morgan's Law |
| | M-07 | Solving Sports Problems with Diagrams, Venn Diagram, Set operations using Venn Diagrams |
| | M-08 | Venn Diagram in real life problems, Cartesian Product of sets |
| Chapter-02: Sequence and Series | M-09 | Sequences and Series, Two interesting Games, Classification of Sequences, Arithmetic Sequence |
| | M-10 | Finding the general term or nth term of an arithmetic sequence |
| | M-11 | Geometric Sequence, Case-01: Lily's Weekly Savings Sequence, Case-02: Spreading of virus, Geometric Sequence, Sum of first n terms of a geometric sequence |
| | M-12 | Fibonacci Sequence, Fibonacci Sequence in Nature, Fibonacci Rectangle |
| | M-13 | Sum of arithmetic series, formula for finding sum of arithmetic series |
| | M-14 | The sum of infinite terms of a geometric series |
| Chapter-03: Concept and Application of Logarithm | M-15 | Concept of exponent, formula, nth root, concept of log, limitation of base of log |
| | M-16 | Types of logarithm, Formulas related to Logarithm Formula(1) Formulas related to Logarithm Formula (2, 3, 4, 5) |
| | M17 | Formulas related to Logarithm Formula (6, 7,8,9,10) |
| | M-18 | Uses of logarithm, logarithm in measuring magnitude of earthquakes |
| | M-19 | Group Work/ Application of logarithm |
| | M-20 | Measuring intensity of sound using logarithm |
| Chapter-04: Polynomial Expression in Nature and Technology | M-21 | Variables, Constants and Polynomials, Forming of Polynomial Expressions from Real Problems, Polynomial Expressions, Draw the graph of a Polynomial Expression with one variable, Graph of a Linear Polynomial Expression, Linear Polynomial Expressions in Nature and Technology |
| | M-22 | Graphs of Quadratic Polynomial Expressions, Quadratic Polynomial Expressions in Nature and Technology |
| | M-23 | Graphs of Cubic polynomial Expressions, Cubic polynomials in Nature and Technology, |
| | M-24 | Polynomial Expressions of two variables, General form of polynomials with two variables, Polynomials of three variables General form of polynomial Expressions with three variables |

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| | M-25 | Polynomials with special characteristics, Homogeneous Polynomial, Symmetric Polynomial, Cyclic Polynomial |
| | M-26 | Addition, Subtraction, Multiplication of Polynomials |
| | M-27 | Division of Polynomials, General Characteristics of Division Process, Remainder Theorem |
| | M-28 | Factorization, Factor theorem, Common Factor |
| | M-29 | The product of Perfect Square Expression, the factorization of expressions expressed as the difference of two squares, Factorization of quadratic expressions |
| | M-30 | Factorization through splitting of middle term, factorization by general way |
| | M-31 | Factorization of sum of two cubic expressions, Factorization of difference of two cubic expressions Partial Fractions (Part-01) |
| | M-32 | Partial Fractions (Part-02), Methods of converting proper fractions |
| Chapter-05: System of Equations in Real World Problems | M-33 | Simultaneous equations in solving practical problems, solving Setu's problems, Consistency of two simultaneous linear equations |
| | M-34 | Algebraic Observations, Methods of Solving simultaneous linear Equations in Two Variables, Solving by Graphical Method |
| | M-35 | Solving by Substitution Method |
| | M-36 | Solving by Elimination Method Solving by Cross Multiplication Method |
| | M-37 | Linear and Quadratic Equations in Two Variables, Quadratic Equations in One Variable, Solution method of Quadratic Equations in One Variable |
| | M-38 | Solving by middle-term expansion, solving by general method |
| | M-39 | Solving quadratic equations with graphs |
| | M-40 | Team Project: Finding the amount of supply based on demand Pair Work, Mathematical Problem Solving |
| Chapter-06: Trigonometry in Measurement | M-41 | Concept of trigonometry, Introduction to different sides and angles of right triangled triangle |
| | M-42 | Different ratios of sides with respect to angles between hypotenuses and adjacent sides of right triangles, names of different ratios with respect to certain angles |
| | M-43 | Values of trigonometric ratios in reference to different angles, For angle 45° , For 30° and 60° acute angles |
| | M-44 | For 0° angle, For 90° angle |
| | M-45 | Use of calculator to determine trigonometric ratios in reference to various angles Group work/project, elevation and depression angle |
| | M-46 | Angles of elevation and depression in reference to a Particular point of a particular side |
| | M-47 | Importance of measuring Trigonometric Ratio |
| | M-48 | Distance and height related life problems and solutions |
| | M-49 | Measurement of trigonometric angle Degree, Radian |
| | M-50 | Positive and Negative Angles, Geometric and Trigonometric Angles, |

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| Chapter-07: Trigonometry for Angular Distance | | Standard position of trigonometric angle, Location of trigonometric angles in different quadrants in standard position, Co-terminal angle |
| | M-51 | Trigonometric Ratios of Angles in Standard Positions, Trigonometric Ratios of Quadrantal Angles, Trigonometric Ratios of Quadrant Angles |
| | M-52 | Sign of trigonometric ratios in different quadrants, interrelation of trigonometric ratios according to difference of angles, Using complementary angles, Standard position of the angle is in second quadrant |
| | M-53 | Standard position of the angle is in third quadrant, Standard position of the angle is in fourth quadrant |
| | M-54 | Interrelationship of trigonometry and coordinate geometry |
| | M-55 | Reference angle, radian measure of trigonometric angle |
| | M-56 | Relation of angles to arcs |
| Chapter-08: Measuring Regular and composite solids | M-57 | Measurement of Arc and Sector, Mathematical Formulation, Area of the cone sector, Curved surface area of cone (Method 01) |
| | M-58 | Curved surface area of cone (Method 02, 03), Height of cone, Individual Task |
| | M-59 | Surface area of cone, volume of cone |
| | M-60 | Sphere, Surface area of sphere, Volume of sphere |
| | M-61 | Surface area of prism, Volume of prism |
| | M-62 | Area of regular polygon |
| | M-63 | Pyramid, Area of pyramid |
| | M-64 | Area of base, Lateral surface area, Volume of pyramid |
| | M-65 | Area, Volume of Composite Solids (Part-01) |
| M-66 | Area, Volume of Composite Solids (Part-02) | |
| Chapter-09: Measures of Dispersion | M-67 | Range, Use of range in daily life, Average |
| | M-68 | Median (with class interval), Mode |
| | M-69 | Mean Deviation, Determination of the mean deviation of uncategorized data |
| | M-70 | Determining the mean deviation of unstructured or uncategorized data using formula, find the mean deviation of categorical data |
| | M-71 | Variance |
| | M-72 | Standard Deviation |