

Class-12 (English)

(Total Videos # 455)

Chapter # 01

Grammar (221 Videos)

1.1 Parts of Speech (Introduction)

Parts of Speech (introduction)
Nouns (explanation with examples)
Pronouns (explanation with examples)
Adjectives (explanation with examples)
Verbs (explanation with examples)
Adverbs (explanation with examples)
Conjunctions (explanation with examples)
Prepositions (explanation with examples)
Interjections (explanation with examples)

1.2 Types of Nouns

Proper Nouns (explanation with examples)
Common Nouns (explanation with examples)
Concrete Nouns (explanation with examples)
Abstract Nouns (explanation with examples)
Exercise-Abstract Nouns-1
Exercise-Abstract Nouns-2
Singular and Plural Nouns (explanation with examples)
Countable and Uncountable Nouns (explanation with examples)
Collective Nouns (explanation with examples)
Exercise-Collective Nouns
Compound Nouns (explanation with examples)
Exercise-Nouns-Mixed
Abstract Noun (explanation/identify/underline)
Abstract Noun (change form/make sentences)
Collective Nouns (explanation/identify/make sentences)

1.3 Types of Pronouns

Personal Pronouns (explanation with examples)
Possessive Pronouns (explanation with examples)
Relative Pronouns & antecedent(explanation with examples)
More on Relative Pronouns
Exercise-Relative Pronouns
Kinds of Pronouns Mixed Part-1
Kinds of Pronouns Mixed Part-2

Exercise-Kinds of Pronouns Mixed
Exercise-Pronoun Antecedent
Kinds of Pronouns (personal/possessive)(explanation)
Kinds of Pronouns (reflexive/indefinite)(explanation)
Kinds of Pronouns (identify various pronouns in sentences)
Relative Pronouns (explanation/fill in blanks/make sentences)

1.4 Types of Prepositions

Prepositions (explanation with examples & exercise)
Compound Prepositions (explanation with examples)
Exercise-Compound Prepositions
Prepositions (explanation with examples)
Compound Prepositions (explanation/fill in blanks)

1.5 Conjunctions

Conjunctions(3 types)(explanation with examples)

1.6 Articles

Definite and Indefinite Articles (explanation with examples)
Exercise-Articles
Articles (explanation/identify/insert articles)

1.7 Ellipses

Ellipses (use of three dots) (explanation with examples)
Ellipses (explanation/make sentences)

1.8 Kinds of Adjectives

Kinds of Adjectives (explanation with examples)
Exercise-Kinds of Adjectives
Order of Adjectives (explanation with examples)
Exercise-Order of Adjectives
Degrees of Comparison (explanation with examples)
Exercise-Degrees of comparison
Degrees of Comparison (explanation/complete the table/make sentences)
Kinds of Adjectives (explanation)
Kinds of Adjectives (change form/make sentences)
Order of Adjectives (explanation/choose the correct phrase)
Order of Adjectives (explanation/make sentences)
Adjective Phrases(explanation/replace phrase by adjective/make senten
Adverb Phrases(explanation/replace phrase by adjective/make sentences)
Adjective Clauses (explanation/identify/fill blanks)
More on Adjective Clauses

1.9 Kinds and Positions of Adverbs in a Senetence

Modal Verbs (explanation with examples)
More on Modal Verbs
Exercise-Modal Verbs
Kinds of Adverbs (explanation with examples)
More on Kinds of Adverbs
Position of Adverbs in a sentence (explanation with examples)

Position of a Single Adverb in a Sentence
Degrees of Adverbs (explanation with examples)
Modal Verbs (explanation/use of modal verbs to describe various situa
Adverbs (explanation with examples)
Kinds of Adverbs/Position of Adverbs (explanation/place adverbs in co
Adverbial Clauses Types (explanation with examples)
More on Adverbial Clauses

1.10 Types of Sentences

Sentence and Order of its Parts
Statements (explanation with examples)
Imperative Sentences (explanation with examples)
Exclamatory Sentences (explanation with examples)
Interrogative Sentences (explanation with examples)
Optative Sentences (explanation with examples)
Exercise-Types of Sentences
Simple Sentences (explanation with examples)
Compound Sentences (explanation with examples)
Complex Sentences (explanation with examples)
Compound-Complex Sentences (explanation with examples)
Exercise-Sentences Mixed
Types of Sentences-Exclamatory/Assertive etc (explanation)
Simple, Complex and Compound Sentences(identify/write)

1.11 Phrases and Clauses

Phrase (explanation with examples)
Noun, Verb, Prepositional Phrases (explanation with examples)
Adjective Phrase (explanation with examples)
Exercise-Adjective Phrase
Adverb Phrase (explanation with examples)
Exercie-Adverb Phrase
Independent/Dependent Clauses (explanation with examples)
Exercise-Independent & Dependent Clause
Exercise-Comma Clause
Noun Clause (explanation with examples)
Adjective Clause (explanation with examples)
Exercise-Adjective Clause-1
Exercise-Adjective Clause-2
Adverb Clause (explanation with examples)
Exercise-Adverb Clause-1
Exercise-Adverb Clause-2
Use of Comma with Clauses (explanation with examples)
Independent/Dependent Clauses (explanation/identify/fill table)
Use of Comma to Separate Clauses(explanation/correct sentences)

1.12 Kinds of Verbs and their Forms

Transitive Verb (explanation with examples)
Intransitive Verb (explanation with examples)

Auxiliary Verb (explanation with examples)
Linking Verbs (explanation with examples)
Finite Verbs (explanation with examples)
Non-Finite Verbs (explanation with examples)
Present and Past participle (explanation with examples)
Exercise-Present & Past Participles
Gerund (explanation with examples)
Gerunds(explanation/complete phrases/make sentences)
Infinitive (explanation with examples)
Use of Infinitives(explanation/make sentences)
More on Use of Infinitives
Forms of Verbs for Regular Verbs (explanation with examples)
Forms of Verbs for Irregular Verbs (explanation with examples)

1.13 Tense, Aspect and Mood

Relation of Tense, Aspect and Mood with Verb (explanation)
Verb Tense (types of tenses) (explanation with examples)
Verb Aspect Versus Verb Tense (explanation with examples)
Verbal Aspect-Simple/Indefinite (explanation with examples)
Verbal Aspect-Continuous/Progressive (explanation with examples)
Verbal Aspect-Perfect (explanation with examples)
Verbal Aspect-Perfect Continuous (explanation with examples)
Verbal Mood (3 types) (explanation with examples)

1.14 Present Tense

Present Simple Tense(Uses & Formation)
Present Simple Tense(Table) (explanation with examples)
Present Continuous Tense (Uses & Formation)
Present Continuous Tense (Table) (explanation with examples)
Present Perfect Tense (Uses&Formation)
Present Perfect Tense(Table) (explanation with examples)
Present Perfect Continuous Tense (Uses&Formation)
Present Perfect Continuous Tense (Table) (explanation & examples)

1.15 Past Tense

Past Simple Tense(Uses & Formation)
Past Simple Tense (Table)(explanation with examples)
Past Continuous Tense(Uses & Formation)
Past Continuous Tense (Table)(explanation with examples)
Past perfect Tense (Uses&Formation)
Past perfect Tense (Table)(explanation with examples)
Past Perfect Continuous Tense (Uses&Formation)
Past Perfect Continuous Tense (Table)(explanation & examples)

1.16 Future Tense

Future Simple Tense (Uses & Formation)(explanation with examples)
Future Simple Tense (Table) (explanation with examples)
Future Continuous Tense(Uses & Formation) (explanation with example)
Future Continuous Tense (Table) (explanation with examples)

Future Perfect Tense(Uses & Formation) (explanation with examples)
Future Perfect Tense (Table)(explanation with examples)
Future Perfect Continuous Tense (Uses & Formation)(explanation &
Future Perfect Continuous Tense (Table)(explanation with examples)
Tenses/Aspect Table (all tenses in one table)
More on Tenses/Aspect Table
Exercise-Tenses-Mixed

1.17 Conditionals Type- I, II and III

Conditionals-Type 1 (explanation with examples)
Conditionals-Sentences Table (explanation with examples)
More on Conditionals-Sentences Table(Type Zero, 1,2,3,Mixed)
Exercise-Conditionals
Conditionals-Type 1,2&3 (explanation with examples/fill blanks)

1.18 Active and Passive Voice

Active and Passive Voice (explanation with examples)
Active and Passive Voice Table Part 1 (explanation & examples)
Active and Passive Voice Table Part 2 (explanation & examples)
Active and Passive Voice Table Part 3 (explanation & examples)
Active and Passive Voice Table Part 4 (explanation & examples)
Exercise-Active & Passive Voice

1.19 Subject-Verb Agreement

Subject-Verb Agreement Part 1 (explanation with examples)
Subject-Verb Agreement Part 2 (explanation with examples)
Subject-Verb Agreement Part 3 (explanation with examples)
Subject-Verb Agreement Part 4 (explanation with examples)
Subject-Verb Agreement Part 5 (explanation with examples)
Exercise-Subject Verb Agreement
Subject-Verb Agreement (identify/fill in blanks)
More on Subject-Verb Agreement (1)
More on Subject-Verb Agreement (2)

1.20 Transitional Devices

Transitional Devices (explanation/fill blanks)
More on Transitional Devices
Exercise Transitional Devices

1.21 Direct/Indirect Narration

Direct/Indirect Narration (explanation/change form)
Direct/Indirect Narration Tense-1 (explanation/change form)
Direct/Indirect Narration Tense-2
Direct/Indirect Narration Tense-4

1.22 Punctuation

Ways to End a Sentence (full stop, comma, exclamation)
Commas with Simple Series, Oxford comma and Adjectives (Rule 1 and 2)
Commas with Clauses (Rule 3)
Commas with Clauses and Introductory Phrases (Rule 4 to 5)

Commas with Introductory Phrases and Nonessential Parts of a Sentence
Appositive Commas (Rule 9)
Commas with Phrases, Dates and Addresses (Rule 10 to 13)
Commas with Degrees, Titles and Direct Speech (Rule 14 to 16)
Commas with Direct Speech, Contrasting Parts and Introductory Items (
Punctuating Salutations and Valedictions
Punctuating Dates
Punctuating Addresses
Apostrophes with Singular Nouns (Rule 1 to 2)
Identify Apostrophes with Plural Nouns (regular nouns) (Rule 3 to 4)
Identify Apostrophes with Plural Nouns (irregular Nouns) (Rule 4- 5)
Identify Plural Possession (Rule 6 to7)
Apostrophes with Singular and Plural Compound Possessives (Rule 8 to
Apostrophes with Possessive Adjectives (Rule 12)
Apostrophes with Contractions(Rule 13)
Apostrophes with Single or More capital Letters, Time and Money (Rule
Apostrophes versus Single quotation Mark and False Possessives (Rule
Colons with Series of Items (Rule 1-3)
Colons with Vertical Lists and Series of Items (Rule 4-5)
Colons with Direct Speech (Rule 6-8)
Semicolons with Clauses (Rule 1 and 2)
Semicolons with Conjunctions and Series of Items (Rule 3 to 6)
Italics, Underlining and Quotes in Titles
Use of Parenthesis
Use of Parenthesis and Brackets
Use of Dashes
Use of Hyphens Part-1
Use of Hyphens Part-2
Use of Hyphens Part-3
Punctuating a Passage Part-1
Punctuating a Passage Part-2

Chapter # 02

Writing Skills (73 Videos)

2.1 Summary Writing

Summary Writing Intro and Steps (explanation with examples)

Exercise-Summary Skills-1

Exercise-Summary Skills-2
Exercise-Summary Skills-3
Summary (explanation with practice using short poems)
Summary Steps with Flow Chart (explanation)
Summary of a Poem(Daffodils) (reading/outlining/checking/writing)
Summary of a Short Passage (reading/outlining/checking/writing)
Summary of a Long Passage (reading/outlining/checking/writing)
More on Summary of a Long Passage

2.2 Paraphrasing

Paraphrasing Intro-Sample (writing a paraphrase of a story)
More on paraphrasing Intro-Sample
Paraphrasing the Stanzas of a Poem (editing/writing)
Paraphrasing (explanation with examples)
More on Paraphrasing

2.3 Paragaraph Writing

Paragraph Writing Intro-Outline (explanation with examples)
Paragraph Writing Sample(writing of a paragraph)
Paragaraph Writing Skills (explanation/demonstration)
More on Paragraph Writing (1)
More on Paragraph Writing (2)

2.4 Essay Writing

Essay Writing -Intro with Essay Types (explanation with examples)
Exercise-Essay Writing
Steps for writing an Essay (explanation with examples)
More on Steps for writing an Essay
Essay Writing (Steps to Follow/types of essays)(explanation)
More on Essay Writing Steps to Follow
An Essay on Quaid-e-Azam our National Hero (mind map/outline/writing)
Important Essay Topics(guessing the type of essay)
Formal/Informal-Non-fictional/Fictional Essay (explanation)

2.5 Mind Mapping

Mind Map (developing of a mind map)
How to Develop a Mind Map (filling a mind map/explanation)

2.6 Argumentative Essay

Argumentative Essay Sample-Part-1 (writing of essay)
Argumentative Essay Sample-Part-2 (writing of essay)
Argumentative Essay Sample-Part-3(writing of essay)
Persuasive/Argumentative Essay Comparison(explanation with table)
A Sample Persuasive Essay (explanation)
A Sample Argumentative Essay (explanation)

2.7 Narrative Essay

Narrative Essay Sample-Part-1 (writing of essay)
Narrative Essay Sample-Part-2 (writing of essay)
Narrative Essay Sample-Part-3 (writing of essay)

[Narrative Essay Sample-Part-4 \(writing of essay\)](#)
[A Sample Personal Narrative Essay \(explanation/mind map/outline\)](#)

2.8 Character Sketch

[Character Sketch\(explanation/steps to follow\)](#)

2.9 Descriptive Essay

[Descriptive Essay Sample \(writing of essay\)](#)

[Character Sketch\(explanation/steps to follow\)](#)

[More on Character Sketch](#)

[Descriptive/Narrative Essay Comparison & Expository/Descriptive Mindm](#)

2.10 Cause and Effect Essay

[Cause and Effect Essay Sample \(writing of essay\)](#)

[More on Cause and Effect Essay Sample \(writing of essay\)](#)

[A Sample Cause and Effect Essay \(mind map/outline/writing\)](#)

[More on A Cause and Effect Essay](#)

2.11 Comparison and Contrast Essay

[Comparison and Contrast Essay Sample\(writing of essay\)](#)

[More on Comparison and Contrast Essay Sample \(writing of essay\)](#)

[A Sample Comparison and Contrast Essay \(outline/explanation\)](#)

[More on A Comparison and Contrast Essay](#)

2.12 Letter Format & Types

[Letter Types and Format\(explanation with examples\)](#)

[Letter Writing Format \(discussion with sample\)](#)

[Letter writing Steps \(discussion\)](#)

[Formal/Informal Letter Comparison & Parts in Detail \(discussion\)](#)

2.13 Formal Letter (Application)

[Formal Letter Sample \(reading and discussion of sample\)](#)

[A Sample Formal Letter/Application \(outline/explanation\)](#)

[More on A Formal Letter](#)

2.14 Informal Letter

[Informal Letter Sample \(reading and discussion of sample\)](#)

2.15 Email

[Email Sample \(reading and discussion of sample\)](#)

2.16 Book Review

[Book Review Intro and Tips \(explanation with examples\)](#)

[Book Review Sample \(discussion of sample\)](#)

[Book Reviews on Hellen Keller's 2 Books \(explanation\)](#)

[Book Review \(Importance and tips to write book reviews-Explanation\)](#)

2.17 Dialogue Writing

[Dialogue Writing Part 1](#)

[Dialogue Writing Part 2](#)

[Dialogue Writing Part 3](#)

[Dialogue Writing Part 4](#)

Chapter # 03

Vocabulary (56 Videos)

3.1 Vocabulary (based on syllabus)

- Vocabulary Words (10)- [meanings & Sentences] Part 1
- Vocabulary Words (10)- [meanings & Sentences] Part 2
- Vocabulary Words (10)- [meanings & Sentences] Part 3
- Vocabulary Words (10)- [meanings & Sentences] Part 4
- Vocabulary Words (10)- [meanings & Sentences] Part 5
- Vocabulary Words (10)- [meanings & Sentences] Part 6
- Vocabulary Words (10)- [meanings & Sentences] Part 7
- Vocabulary Words (10)- [meanings & Sentences] Part 8
- Vocabulary Words (10)- [meanings & Sentences] Part 9
- Vocabulary Words (10)- [meanings & Sentences] Part 10
- Vocabulary Words (10)- [meanings & Sentences] Part 11
- Vocabulary Words (10)- [meanings & Sentences] Part 12
- Vocabulary Words (10)- [meanings & Sentences] Part 13
- Vocabulary Words (10)- [meanings & Sentences] Part 14
- Vocabulary Words (10)- [meanings & Sentences] Part 15
- Vocabulary Words (10)- [meanings & Sentences] Part 16
- Vocabulary Words (10)- [meanings & Sentences] Part 17
- Vocabulary Words (10)- [meanings & Sentences] Part 18
- Vocabulary Words (10)- [meanings & Sentences] Part 19
- Vocabulary Words (5)- [meanings & Sentences] Part 20
- Vocabulary Words (5)- [meanings & Sentences] Part 21

3.2 Word Pairs

- Word Pairs (5)- [meanings & Sentences] Part 1
- Word Pairs (5)- [meanings & Sentences] Part 2
- Word Pairs (5)- [meanings & Sentences] Part 3
- Word Pairs (5)- [meanings & Sentences] Part 4
- Word Pairs (5)- [meanings & Sentences] Part 5
- Word Pairs (5)- [meanings & Sentences] Part 6
- Word Pairs (5)- [meanings & Sentences] Part 7
- Word Pairs (5)- [meanings & Sentences] Part 8
- Word Pairs (5)- [meanings & Sentences] Part 9
- Word Pairs (5)- [meanings & Sentences] Part 10
- Word Pairs (5)- [meanings & Sentences] Part 11
- Word Pairs (5)- [meanings & Sentences] Part 12
- Word Pairs (5)- [meanings & Sentences] Part 13
- Word Pairs (5)- [meanings & Sentences] Part 14

Word Pairs (5)- [meanings & Sentences] Part 15
Word Pairs (5)- [meanings & Sentences] Part 16
Word Pairs (5)- [meanings & Sentences] Part 17
Word Pairs (5)- [meanings & Sentences] Part 18
Word Pairs (5)- [meanings & Sentences] Part 19
Word Pairs (5)- [meanings & Sentences] Part 20

3.3 Proverbs and Stories

Proverb and Story Part 1
Proverb and Story Part 2
Proverb and Story Part 3
Proverb and Story Part 4
Proverb and Story Part 5

3.4 Idioms and Phrasal Verbs

Idioms (10)- [meanings & Sentences] Part 1
Idioms (10)- [meanings & Sentences] Part 2
Idioms (10)- [meanings & Sentences] Part 3
Idioms (10)- [meanings & Sentences] Part 4
Idioms (10)- [meanings & Sentences] Part 5
Phrasal Verbs (10)- [meanings & Sentences] Part 1
Phrasal Verbs (10)- [meanings & Sentences] Part 2
Phrasal Verbs (10)- [meanings & Sentences] Part 3
Phrasal Verbs (10)- [meanings & Sentences] Part 4
Phrasal Verbs (10)- [meanings & Sentences] Part 5

Chapter # 04

Essay Outlines (15 Videos)

4.1 Essay Outlines (with explanation)

Essay Outline (Women Education) Part 1
Essay Outline (Women Education) Part 2
Essay Outline (Women Education) Part 3
Essay Outline (Social Media) Part 1
Essay Outline (Social Media) Part 2
Essay Outline (Social Media) Part 3
Essay Outline (Corruption) Part 1
Essay Outline (Corruption) Part 2
Essay Outline (Corruption) Part 3
Essay Outline (Pollution) Part 1

Essay Outline (Pollution) Part 2
Essay Outline (Education) Part 1
Essay Outline (Education) Part 2
Essay Outline (Education) Part 3
Essay Outline (Education) Part 4

Chapter # 05

Short Stories (18 Videos)

5.1 Short Stories (Summaries and Q & A)

Button Button Summary
Button Button Q & A
Birkenhead Drill Summary
Birkenhead Drill Q & A
The Stuffed Trout Summary
The Stuffed Trout Q & A
The Man who was a Hospital
The Man who was a Hospital Q & A
The Dying Sun Summary
The Dying Sun Q & A Part 1
The Dying Sun Q & A Part 2
The Devoted Friend Summary
The Devoted Friend Q & A Part 1
The Devoted Friend Q & A Part 2
Hitch-Hiking Across the Sahara Summary
Hitch-Hiking Across the Sahara Q & A Part 1
Hitch-Hiking Across the Sahara Q & A Part 2
M. A. Jinnah: A Great States Man Q & A

Chapter # 06

Plays (27 Videos)

6.1 Plays (Summaries, Analysis and Q & A)

The Oyster and the Pearl Summary and Analysis Part 1
The Oyster and the Pearl Summary and Analysis Part 2
The Oyster and the Pearl Q & A Part 1
The Oyster and the Pearl Q & A Part 2
Progress Summary Part 1

Progress Summary Part 2
Progress Q & A Part 1
Progress Q & A Part 2
Progress Q & A Part 3
Dear Departed Summary
Dear Departed Q & A Part 1
Dear Departed Q & A Part 2
True Friendship Summary Part 1
True Friendship Summary Part 2
True Friendship Q & A Part 1
True Friendship Q & A Part 2
King Lear Summary
King Lear Character Analysis Part 1
King Lear Character Analysis Part 2
King Lear Q & A Part 1
King Lear Q & A Part 2
King Lear Q & A Part 3
King Lear Q & A Part 4
King Lear Q & A Part 5
Twenty Minutes with Mrs. Oakentubb Summary
Twenty Minutes with Mrs. Oakentubb Q & A Part 1
Twenty Minutes with Mrs. Oakentubb Q & A Part 2

Chapter # 07

Poems (26 Videos)

7.1 Poems (Summaries, Analysis, Themes and

Night Mail Summary Part 1
Night Mail Summary Part 2
Night Mail Q & A Part 1
Night Mail Q & A Part 2
Sonnet-Westminster Bridge Summary
Sonnet-Westminster Bridge Q & A Part 1
Sonnet-Westminster Bridge Q & A Part 2
Sonnet-Westminster Bridge Q & A Part 3
We are Seven Summary Part 1
We are Seven Summary Part 2
We are Seven Themes Part 1
We are Seven Themes Part 2

We are Seven Themes Part 3
September, The First Day of School Summary Part 1
September, The First Day of School Summary Part 2
September, The First Day of School Summary Part 3
September, The First Day of School Themes
Endymion Summary and Analysis Part 1
Endymion Summary and Analysis Part 2
Endymion Summary and Analysis Part 3
Endymion Questions and Answers
One Way of Love Summary
One Way of Love Analysis
If Summary
If Analysis Part 1
If Analysis Part 2

Chapter # 08

Novels (19 Videos)

8.1 Novel (Summary, Themes, Characters and

Goodbye Mr. Chips Summary Part 1
Goodbye Mr. Chips Summary Part 2
Goodbye Mr. Chips Summary Part 3
Goodbye Mr. Chips Summary Part 4
Character of Mr. Chips Part 1
Character of Mr. Chips Part 2
Character of Mr. Chips Part 3
Character of Katherine Bridges Part 1
Character of Katherine Bridges Part 2
Character of Mr. Ralston
Character of Mrs. Wicketts
Goodbye Mr. Chips Short Q & A Part 1
Goodbye Mr. Chips Short Q & A Part 2
Goodbye Mr. Chips Theme: Humour
Goodbye Mr. Chips Theme: Anti-War Part 1
Goodbye Mr. Chips Theme: Anti-War Part 2
Goodbye Mr. Chips Theme: Farewell Speech: Always Stay Positive Part 1
Goodbye Mr. Chips Theme: Farewell Speech: Always Stay Positive Part 2
Goodbye Mr. Chips Theme: Changing World

Class-12 (Mathematics)

(Total Videos # 627)

Chapter # 01

Functions and Limits (58 Videos)

1.1 Introduction

Introduction to Function

More on Introduction to Functions

Problem3-Introduction to Function

Problem4-Introduction to Function

Domain & Range of Binary Relation

Graphs of Algebraic Functions

Graph of Functions Defined Piece-wise

1.2 Types of Functions

Algebraic Functions
Trigonometric Functions
Introduction to Binary Operations
More on Inverse Trigonometric Functions
Further to Inverse Trigonometric Functions
Operations on Residue Classes Modulo n
Properties of Binary Operations
More on Logarithmic Functions
Hyperbolic Functions
Inverse Hyperbolic Functions
Explicit and Implicit Functions
Parametric Functions
Even and Odd Functions
Problem-Even and Odd Functions

1.3 Composition of Function and Inverse of

Composition of a Functions
Problem-Composition of Functions
Inverse of a Function
More on Inverse of a Function
Problem2-Inverse of a Function
Algebraic Method to find the Inverse Function
Problem-Algebraic Method to find the Inverse Function

1.4 Limit of a Function and Theorems on Lim

Meaning of the Phrase 'x' Approaches zero, Infinity
Problem-Meaning of the Phrase 'x' Approaches zero, Infinity
Concept of a Limit of a Function
Problem-Concept of Limit of a Function

1.5 Limits of Important Functions

Limit at Infinity
Method for Evaluating the Limits at Infinity
Problem-Method for Evaluating the Limits at Infinity
Deducting Formulae at Limit Approaches to 0 and infinity
Problem-Deducting Formulae at Limit Approaches to 0 and infinity
The Sandwich Theorem

1.6 Continous and Discontinuous Functions

One-Sided Limits
Criterion for Existence of Limit of a Function
Problem1-Criterion for Existence of Limit of a Function
Continuity of a Function at a Number

1.7 Graphs

Graph of the Exponential Function
Problem1-Graph of the Exponential Function
More on Graph of Exponential Function
Problem1-More on Graph of Exponential Function

Graph of Common Logarithmic Function
Problem1-Graph of Common Logarithmic Function
Graph of Natural Logarithmic Function
Problem1-Graph of Natural Logarithmic Function
Graphs of Implicit Functions-Circle
Problem1-Graphs of Implicit Functions-Circle
Graphs of Implicit Functions-Ellipse
Graph of Parametric Equations
Problem1-Graph of Parametric Equations
Graphs of Discontinuous Functions
Problem1-Graphs of Discontinuous Functions
Graphical Solution of the Equation

Chapter # 02

Differentiation (84 Videos)

2.1 Introduction

Introducing Dependent and Independent Variables
Average Rate of Change
Derivative of a Function
More on Derivative of a Function
Notation for Derivative
Geometrical Interpretation of a Derivative
More on Geometrical Interpretation of Derivative

2.2 Finding $f'(x)$ from Definition of Deriva

Derivative by First Principle
More on Derivative by First Principle
Problem1-Derivative by First Principle
Problem2-Derivative by First Principle

2.3 Theorems on Definition

Derivative of a Constant Function
Power Rule for Differentiation
More on Power Rule for Differentiation
Problem-Power Rule for Differentiation
Problem1-Power Rule for Differentiation
Derivative of a sum or Difference of Functions
Problem1-Derivative of a sum or Difference of Functions
Derivative of Product
Problem1-Derivative of Product
Derivative of a Quotient
More on Derivative of a Quotient

2.4 The Chain Rule

Differentiation by Chain Rule

More on Differentiation by Chain Rule

Problem1-Differentiation by Chain Rule

Problem2-Differentiation by Chain Rule

2.5 Derivative of Inverse Functions

Derivative of Inverse Functions

2.6 Derivative of Functions Given in the Form of Parametric Equations

Derivative of Parametric Equations

Problem1-Derivative of Parametric Equations

2.7 Differentiation of Implicit Relations

Implicit Differentiations

Problem-Implicit Differentiations

Problem-Implicit Differentiations

2.8 Derivatives of Trigonometric Functions

Derivative of Trigonometric Functions

More on Derivative of Trigonometric Functions

More Stuff on Derivative of Trigonometric Functions

Problem1-Derivative of Trigonometric Functions

Problem2-Derivative of Trigonometric Functions

Problem3-Derivative of Trigonometric Functions

2.9 Derivatives of Inverse Trigonometric Functions

Derivative of Inverse Trigonometric Functions

More on Derivative of Inverse Trigonometric Functions

Problem1-Derivative of Inverse Trigonometric Functions

Problem2-Derivative of Inverse Trigonometric Functions

Problem3-Derivative of Inverse Trigonometric Functions

2.10 Derivative of Exponential Functions

Derivative of Exponential Functions

Problem1-Derivative of Exponential Functions

2.11 Derivative of Logarithmic Functions

Derivative of Logarithmic Functions

Problem1-Derivative of Logarithmic Functions

2.12 Logarithmic Differentiation

Problem Solving-Logarithmic Functions

2.13 Derivative of Hyperbolic Functions

Derivative of Hyperbolic Functions

More on Derivative of Hyperbolic Functions

Problem1-Derivative of Hyperbolic Functions

2.14 Derivatives of the Inverse Hyperbolic Functions

Derivatives of the Inverse Hyperbolic Functions
More on Derivatives of the Inverse Hyperbolic Functions
Problem1-Derivatives of the Inverse Hyperbolic Functions

2.15 Successive Differentiation Or Higher Derivatives

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1.4 Database Management System

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- Properties of Relation
- 2.3 Views**
 - Views
- 2.4 Keys**
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 - Types of Keys : Sort Key
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 - Data Analysis
 - Planning a Database : Requirement Analysis
- 3.2 Data Modeling**
 - DataModeling : Main Ingredients : Entity and Object
 - Entity Relationship Model : Entity , Attribute and Relationship
 - Cardinality and Modality of a Relation
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- 3.3 Database Design**
 - Database Design : Database Development Process
 - Logical Database Design : Represent Entities
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Chapter # 04

Data Integrity and Normalization (05 Videos)

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4.2 **Normalization**

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Introduction to Microsoft Access (06 Videos)

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5.2 **MS-Access Application Window**

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5.3 **Database Objects**

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Table and Query (20 Videos)

6.1 **Overview**

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6.2 **Table Creation**

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6.3 **Modifying a Table**

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6.4 Table Relationship

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Creating the Query : Using Query Design Window

Using Simple Query Wizard

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Finding Duplicate Queries in MS Access

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Microsoft Access-Forms and Reports (16 Videos)

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Advantages of Using Forms

Creating a Form using Wizard

Creating Form in a design view

7.2 Adding Records Using a Form

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Form Appearance : Header and Footer

7.3 Check Boxes and Radio Buttons

Using forms controls

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Creating Reports Using Report Wizard

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7.6 Linking

Linking

7.7 Creating a Switch Board in Access

Creating a SwitchBoard in Access

7.8 Keyboard Shortcuts
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Getting Started with C (18 Videos)

8.1 Overview

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8.2 Developing a C Program (A Stepwise App

A simple C Program

8.3 Basic Structure of a C Program

Understanding of Integrated Development Environment : IDE
How to Create Environment before Writing a Computer Program
Compiler - turbo c++ (creating , saving , editing)
Compiling , Linking and executing a program
setting the output and source directories
Pre-Processor directives
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8.4 Common Programming Errors

How to identify errors in Computer Program
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8.5 Programming Languages

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Characteristics of High level languages
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9.2 Keywords

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Declaration and initialization of variable

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9.7 Expression

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11.3 Use of Logical Operators

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11.5 Conditional Operator

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12.3 Do-While Loop

Why there is a need of Do.. While Loop

Structure of Do.. While loop

Program on Do.. While Loop

Difference between while and Do while

12.4 Nested Loop

Requirement of loops within loop

Nested Loop with example

Complex problem solving using nested loops

12.5 GOTO Statement

GOTO statement

Chapter # 13

Functions in C (07 Videos)

13.1 Overview

What is Function

Why there is a need of Function in Programming

13.2 Types of Function

Built in functions

User defined functions

13.3 Writing Functions in C

Parts of Functions

13.4 Local Variables and their Scope

Scope of variable: Local variable

13.5 Global Variables and their Scope

Scope of variable: Global variable

Chapter # 14

File Handling (12 Videos)

14.1 Introduction

- Introduction to file handling
- Types of files: Text and Binary
- Opening a file
- Modes of opening a file
- More on Modes of opening a file
- Reading input file
- Closing a file
- bof() function
- eof() function
- Stream and its types
- reading/writing files character by character
- reading/writing files using strings

Class-12 (Physics)

(Total Videos # 458)

Chapter # 01

Electrostatics (49 Videos)

1.1 Coulomb's Law

Coulomb's Law
More on Coulomb's Law
Problem-Coulomb's Law

1.2 Fields of Force

Fields of Force
More on Fields of Force
Problem-Field of Force.

1.3 Electric Field Lines

Electric Field Lines

1.4 Applications of Electrostatics

Xerography (Photocopier)
Inkjet Printers

1.5 Electric Flux

Electric Flux
Problem-Electric Flux

1.6 Electric Flux Through a Surface Enclosing a Charge

Electric Flux Through a Surface Enclosing a Charge
Problem-Electric Flux Through a Surface Enclosing a Charge

1.7 Gauss's Law

Gauss's Law
Problem-Gauss's Law

1.8 Applications of Gauss's Law

Intensity of Field Inside a Hollow Charged Sphere
Electric Intensity Due to an Infinite Sheet of Charge
Problem-Electric Intensity Due to an Infinite Sheet of Charge
Electric Intensity Between Two Oppositely Charged Parallel Plates
Problem-Electric Intensity Between Two Oppositely Charged Parallel PI

1.9 Electric Potential

Electric Potential
Problem-Electric Potential
Electric Field as Potential Gradient
Problem-Electric Field as Potential Gradient
Electric Potential at a Point due to a Point Charge
More on Electric Potential at a Point due to a Point Charge
More on Electric Potential at a Point due to a Point Charge

[Problem-Electric Potential at a Point due to a Point Charge](#)

1.10 Electron Volt

[Electron Volt](#)

[Problem-Electron Volt](#)

1.11 Electric and Gravitational Forces (A Comparison)

[Electric and Gravitational Forces \(A Comparison\)](#)

[Problem-Electric and Gravitational Forces \(A Comparison\)](#)

1.12 Charge on an Electron by Millikan's Method

[Charge on an Electron by Millikan's Method](#)

[More on Charge on an Electron by Millikan's Method](#)

[Problem-Charge on an Electron by Millikan's Method](#)

1.13 Capacitor

[Capacitor](#)

[Problem-Capacitor](#)

1.14 Capacitance of a Parallel Plate Capacitor

[Capacitance of a Parallel Plate Capacitor](#)

[Problem-Capacitance of a Parallel Plate Capacitor](#)

1.15 Electric Polarization of Dielectrics

[Electric Polarization of Dielectrics](#)

1.16 Energy Stored in a Capacitor

[Energy Stored in a Capacitor](#)

[More on Energy Stored in a Capacitor](#)

[Problem1-Energy Stored in a Capacitor](#)

[Problem2-Energy Stored in a Capacitor](#)

1.17 Charging and Discharging a Capacitor

[Charging and Discharging a Capacitor](#)

[More on Charging and Discharging a Capacitor-part1](#)

[More on Charging and Discharging a Capacitor-part2](#)

[More on Charging and Discharging a Capacitor-part3](#)

[Problem-Charging and Discharging a Capacitor](#)

Chapter # 02

Current Electricity (48 Videos)

2.1 Electric Current

Electric Current
Problem-Electric Current
Current Through a Metallic Conductor
Problem-Current Through a Metallic Conductor

2.2 **Source of Current**

Source of Current

2.3 **Effects of Current**

Effects of Current
More on Effects of Current

2.4 **Ohm' law**

Ohm's law
More on Ohm's law
Problem-Ohm's Law
Review of Series and Parallel Combination of Resistors
More on Review of Series and Parallel Combination of Resistors
Problem1-Review of Series and Parallel Combination of Resistors
Problem2-Review of Series and Parallel Combination of Resistors

2.5 **Resistivity and its Dependence Upon Tem**

Resistivity and its Dependence Upon Temperature
More on Resistivity and its Dependence Upon Temperature
Problem-Resistivity and its Dependence Upon Temperature

2.6 **Colour Code for Carbon Resistances**

Colour Code for Carbon Resistances
Problem1-Color Code for Carbon Resistances
Problem2-Color Code for Carbon Resistances
Rheostat
More on Rheostat
Thermistors

2.7 **Electrical Power and Power Dissipation in Resistors**

Electrical Power and Power Dissipation in Resistors
Problem-Electrical Power and Power Dissipation in Resistors

2.8 **Electromotive Force (EMF) and Potential Difference**

Electromotive Force (EMF) and Potential Difference
More on Electromotive Force (EMF) and Potential Difference
Problem-Electromotive Force (EMF) and Potential Difference
Relation Between Electromotive Force and Potential Difference and Int
More on Relation Between Electromotive Force and Potential Difference
Problem-Relation Between Electromotive Force and Potential Difference
Maximum Power Output
Problem-Maximum Power Output

2.9 **Kirchhoff's Rules**

Kirchhoff's First Rules
Kirchhoff's Second Rule

Problem-Kirchhoff's Second Rule
More on Problem-Kirchhoff's Second Rule
Node Analysis
Problem-Node Analysis
Loop Analysis
More on Problem-Loop Analysis
Problem-Loop Analysis

2.10 **Wheatstone Bridge**

Wheatstone Bridge
Problem-Wheatstone Bridge
More on Problem-Wheatstone Bridge

2.11 **Potentiometer**

Potentiometer
More on Potentiometer
Problem-Potentiometer

Chapter # 03

Current Electricity (41 Videos)

3.1 **Magnetic Field Due to Current in a Long**

Magnetic Field Due to Current in a Long Straight Wire
Problem-Magnetic Field Due to Current in a Long Straight Wire

3.2 **Force on a Current Carrying Conductor i**

Force on a Current Carrying Conductor in a Uniform B Field
More on Force on a Current Carrying Conductor in a Uniform B Field
Problem1-Force on a Current Carrying Conductor Place in a Magnetic Fi
Problem2-Force on a Current Carrying Conductor Place in a Magnetic Fi

3.3 **Magnetic Flux and Flux Density**

Magnetic Flux and Flux Density
Problem-Magnetic Flux and Flux Density

3.4 **Ampere's Law and Determination of Flux**

Ampere's Law and Determination of Flux Density B
More on Ampere's Law and Determination of Flux Density B
Problem-Ampere's Law and Determination of Flux Density B
Field Due to a Current Carrying Solenoid
More on Field Due to a Current Carrying Solenoid
Problem-Field Due to a Current Carrying Solenoid

3.5 **Force on a Moving Charge in a Magnetic**

Force on a Moving Charge in a Magnetic Field

More on Force on a Moving Charge in a Magnetic Field

Problem-Force on a Moving Charge in a Magnetic Field

3.6 Motion of Charged Particle in an Electric and Magnetic Field

Motion of Charged Particle in an Electric and Magnetic Field

Problem-Motion of Charged Particle in an Electric and Magnetic Field

3.7 Determination of e/m of an Electron

Determination of e/m of an Electron

More on Determination of e/m of an Electron

Problem-Determination of e/m of an Electron

3.8 Cathode Ray Oscilloscope

Cathode Ray Oscilloscope

Uses of CRO

3.9 Torque on a Current Carrying Coil

Torque on a Current Carrying Coil in a Magnetic Field

More on Torque on a Current Carrying Coil in a Magnetic Field

Problem-Torque on a Current Carrying Coil in a Magnetic Field

3.10 Galvanometer

Galvanometer

More on Galvanometer

Ammeter

More on Ammeter

Problem-Ammeter

Voltmeter

More on Voltmeter

Problem-Voltmeter

Ohmmeter

3.11 AVO Meter-Multimeter

AVO meter - Multimeter

Multi-Range Ammeter

Multi-Range D.C. Voltmeter

Multi-Range A.C. Voltmeter

Multi-Range Ohmmeter

Chapter # 04

Electromagnetic Induction (32 Videos)

4.1 Induced EMF and Induced Current

Induced EMF and Induced Current

More on Induced EMF and Induced Current

4.2 Motional EMF

Motional EMF

More on Motional EMF

Problem-Motional EMF

4.3 Faraday's Law and Induced EMF

Faraday's Law and Induced EMF

Problem-Faraday's Law and Induced EMF

4.4 Lenz's Law and Direction of Induced EMF

Lenz's Law and Direction of Induced EMF

Problem-Lenz's Law and Direction of Induced EMF

4.5 Mutual Induction

Mutual Induction

More on Mutual Induction

Problem-Mutual Induction

4.6 Self Induction

Self Induction

Problem-Self Induction

4.7 Energy Stored in an Inductor

Energy Stored in an Inductor

More on Energy Stored in an Inductor

Problem1-Energy Stored in an Inductor

Problem2-Energy Stored in an Inductor

4.8 Alternating Current Generator

Alternating Current Generator

More on Alternating Current Generator

More on Alternating Current Generator

Problem-Alternating Current Generator

4.9 D.C. Generator

D.C. Generator

4.10 Back Motor Effect in Generators

Back Motor Effect in Generator

4.11 D.C. Motor

D.C. Motor

4.12 Back EMF Effect in Motors

Back EMF Effect in Motors

Problem1-Back EMF Effect in Motors

Problem2-Back EMF Effect in Motors

Problem3-Back EMF Effect in Motors

4.13 Transformer

Transformer

More on Transformer
Problem-Transformer

Chapter # 05

Alternating Current (47 Videos)

5.1 Alternating Current

Alternating Current
More on Alternating Current
More on Alternating Current
Problem-Alternating Current
Phase of A.C.
More on Phase of A.C.
Vector Representation of an Alternating Current

5.2 A.C. Circuits

A.C. Circuits

5.3 A.C. Through a Resistor

Through a Resistor
More on A.C. Through a Resistor
Problem1-A.C. Through a Resistor
Problem2-A.C. Through a Resistor

5.4 A.C. Through a Capacitor

Through a Capacitor
More on A.C. Through a Capacitor
More on A.C. Through a Capacitor
Reactance of Capacitive Circuit
Problem-A.C. Through a Capacitor
More on Problem-A.C. Through a Capacitor
Problem-Capacitive Reactance

5.5 A.C. Through an Inductor

Through an Inductor
more on A.C. Through an Inductor
Problem-A.C. Through an Inductor

5.6 Impedance

Impedance
Problem1-Impedance
Problem2-Impedance

5.7 R-C and R-L Series Circuits

R-C and R-L Series Circuits

[More on R-C and R-L Series Circuits](#)
[More on R-C and R-L Series Circuits](#)
[More on R-C and R-L Series Circuits](#)
[Problem1-R-C and R-L Series Circuits](#)
[Problem2-R-C and R-L Series Circuits](#)
[More on Problem2-R-C and R-L Series Circuits](#)

5.8 Power in A.C. Circuits

[Power in A.C. Circuits](#)
[More on Power in A.C. Circuits](#)
[Problem-Power in A.C. Circuits](#)
[More on Problem-Power in A.C. Circuits](#)

5.9 Series Resonance Circuit

[Series Resonance Circuits](#)
[More on Series Resonance Circuits](#)

5.10 Parallel Resonance Circuit

[Parallel Resonance Circuits](#)
[More on Parallel Resonance Circuits](#)

5.11 Three Phase A.C. Supply

[Three Phase A.C. Supply](#)

5.12 Principle of Metal Detectors

[Principle of Metal Detectors](#)

5.13 Choke

[Choke](#)

5.14 Electromagnetic Waves

[Electromagnetic Waves](#)

5.15 Principle of Generation, Transmission and Reception of Electromagnetic Waves

[Principle of Generation of e.m Waves](#)
[Principle of Transmission and Reception](#)

5.16 Modulation

[Modulation](#)

Chapter # 06

17. Physics of Solids (29 Videos)

6.1 Classification of Solids

[Crystalline and Amorphous or Glassy Solids](#)

Polymeric Solids and Crystal Lattice

6.2 **Mechanical Properties of Solids**

Deformation in Solids

Stress and Strain

More on Stress and Strain

Problem-Stress and Strain

Elastic Constants

Elastic Limit and Yield Strength

Problem-Elastic Limit and Yield Strength

Strain Energy in Deformed Materials

More on Strain Energy in Deformed Materials

6.3 **Electrical Properties of Solids**

Electrical Properties of Solids

Energy Band Theory

Insulators and Conductors

Semiconductors

Intrinsic Semiconductors

Extrinsic Semiconductors

Conduction by Electrons and Holes in Semiconductors

6.4 **Superconductors**

Superconductors

More on Superconductors

6.5 **Magnetic Properties of Solids**

Magnetic Properties of Solids

Atomic Origin of Magnetism

Paramagnetic Material

Diamagnetic Material

More on Diamagnetic Material

Origin of Ferromagnetism

More on Origin of Ferromagnetism

Hysteresis Loop

More on Hysteresis Loop

Chapter # 07

Electronics (49 Videos)

7.1 **Brief Review of p-n Junction and its Ch**

Brief Review of p-n Junction and its Characteristics

More on Brief Review of p-n Junction and its Characteristics

More on Brief Review of p-n Junction and its Characteristics

More on Brief Review of p-n Junction and its Characteristics
Forward Biased p-n Junction
Reverse Biased p-n Junction

7.2 **Rectification**

Rectification
Half Wave Rectification
Full Wave Rectification

7.3 **Specially Designed p-n Junctions**

Light Emitting Diode
More on Light Emitting Diode
Photo Diode
More on Photo Diode
Photo-Voltaic Cell
More on Photo-Voltaic Cell

7.4 **Transistors**

Transistors
More on The Transistor
Problem- Transistors
Current Flow in a n-p-n Transistor
Problem- Current Flow in a n-p-n Transistor

7.5 **Transistor as an Amplifier**

Transistor as an Amplifier
More on Transistor as an Amplifier
More on Transistor as an Amplifier

7.6 **Transistor as a Switch**

Transistor as a Switch
More on Transistor as a Switch

7.7 **Operational Amplifier**

Operational Amplifier
More on Operational Amplifier
Characteristics of op-amp

7.8 **Op-AMP as Inverting Amplifier**

OP-AMP as Inverting Amplifier
More on OP AMP as Inverting Amplifier
Problem- OP-AMP as Inverting Amplifier

7.9 **Op-AMP as Non-Inverting Amplifier**

OP-AMP as Non-Inverting Amplifier
Problem- OP-AMP as Non-Inverting Amplifier

7.10 **Op-AMP as a Comparator**

OP-AMP as a Comparator

7.11 **Comparator as a Night Switch**

Comparator as a Night Switch

7.12 Digital Systems

Digital Systems

7.13 Fundamental Logic Gates

Fundamental Logic Gates

OR Gate

AND Gate

NOT Gate

7.14 Other Logic Gates

Other Logic Gates

NOR Gate

NAND Gate

Exclusive OR Gate(XOR)

Exclusive - NOR Gate (XNOR)

Problem-Exclusive - NOR Gate (XNOR)

7.15 Applications of Gates in Control Systems

Control Systems Using Logic Gates

More on Control Systems Using Logic Gates

Problem-Control Systems Using Logic Gates

Chapter # 08

Dawn of Modern Physics (59 Videos)

8.1 Relative Motion

Relative Motion

8.2 Frames of Reference

Frames of Reference

Inertial Reference Frame

8.3 Special Theory of Relativity

Special Theory of Relativity

More on Special Theory of Relativity

Time Dilation

Problem-Time Dilation

Length Contraction

Problem-Length Contraction

Mass Variation

Problem-Mass Variation

Mass energy relation

Problem-Energy - Mass Relation

NAVSTAR Navigation System

8.4 Black Body Radiation

Black Body Radiation

1-More on Black-Body Radiation

2-More on Black-Body Radiation

Problem1-Black Body Radiation

Problem2-Black Body Radiation

Planck's Assumption

More on Planck's Assumption

Problem-Planck's Assumption

The Photon

More on The Photon

Problem-The Photon

8.5 Interaction of Electromagnetic Radiatio

Interaction of Electromagnetic Radiation With Matter

Photoelectric Effect

More on Photoelectric effect

2-More on Photoelectric Effect

3-More on Photoelectric Effect

Problem-Photoelectric Effect

Explanation on the Basis of Quantum Theory

More on Explanation on the Basis of Quantum Theory

Problem-Explanation on the Basis of Quantum Theory

Photocell

More on Photocell

Compton Effect

1-More on Compton Effect

2-More on Compton Effect

Problem-Compton Effect

Pair Production

More on Pair Production

Problem-Pair Production

8.6 Annihilation of Matter

Annihilation of Matter

8.7 Wave Nature of Particles

Wave Nature of Particles

More on Wave Nature of Particles

Davisson and Germer Experiment

More on Davisson and Germer Experiment

Problem-Davisson and Germer Experiment

Wave Particle Duality

More on Wave Particle Duality

Uses of Wave Nature of Particles

Electron Microscope

More on Electron Microscope

8.8 Uncertainty Principle

Uncertainty Principle

1-More on Uncertainty Principle

2-More on Uncertainty Principle

Problem1-Uncertainty Principle

Problem2-Uncertainty Principle

Chapter # 09

Atomic Spectra (33 Videos)

9.1 Atomic Spectra

Atomic Spectra

More on Atomic Spectra

More on Atomic Spectra

9.2 Bohr's Model of the Hydrogen Atom

Bohr's Model of the Hydrogen Atom

Problem-Bohr's Model of the Hydrogen Atom

De-Broglie's Interpretation of Bohr's Orbits

Quantized Radii

More on Quantized Radii

Problem-Quantized Radii

Quantized Energies

More on Quantized Energies

Problem-Quantized Energies

Hydrogen Emission Spectrum

9.3 Inner Shell Transitions and Characteris

Inner Shell Transitions and Characteristic X-Rays

Production of X-Rays

More on Production of X-Rays

Problem-Production of X-Rays

The Continuous X-Ray Spectrum

Properties of X-Rays

More on Properties of X-Rays

Uses of X-Ray

CAT - Scanner

Biological Effects of X-Rays

9.4 Uncertainty Within the Atom

Uncertainty Within the Atom

More on Uncertainty Within the Atom

9.5 Laser

Laser
More on Laser
Spontaneous and Stimulated Emission
Population Inversion and Laser Action
More on Population Inversion and Laser Action
Ruby Laser
Helium - Neon Laser
Uses of Laser in Medicine and Industry

Chapter # 10

Nuclear Physics (71 Videos)

10.1 Atomic Nucleus

Atomic Nucleus
More on Atomic Nucleus

10.2 Isotopes

Isotopes and Isobars
1-More on Isotopes and Isobars
2-More on Isotopes and Isobars
Mass Spectrograph
More on Mass Spectrograph

10.3 Mass Defect and Binding Energy

Mass Defect and Binding Energy
1-More on Mass Defect and Binding Energy
2-More on Mass Defect and Binding Energy
Mass defect and binding energy-problem
Mass defect and binding energy-problem

10.4 Radioactivity

Radioactivity
Alpha Emission
Beta Emission
Gamma Emission

10.5 Half Life

Half Life
1-More on Half Life
2-More on Half Life
Half life-problem
Half life-problem

10.6 Interaction of Radiation With Matter

Interaction of Radiation With Matter
Interaction of Alpha Particles With Matter

[More on Interaction of Alpha Particles With Matter](#)
[Interaction of Beta Particles With Matter](#)
[Interaction of Gamma Rays With Matter](#)
[More on Interaction of Gamma Rays With Matter](#)
[Interaction of Neutrons With Matter](#)
[Comparison between Alpha, Beta and Gamma Radiations](#)

10.7 Radiation Detectors

[More on Comparison between Alpha, Beta and Gamma Radiations](#)
[Radiation Detectors](#)
[Wilson Cloud Chamber](#)
[More on Wilson Cloud Chamber](#)
[Geiger-Muller Counter](#)
[1-More on Geiger-Muller Counter](#)
[2-More on Geiger-Muller Counter](#)
[Solid State Detector](#)
[More on Solid State Detector](#)

10.8 Nuclear Reactions

[Nuclear Reactions](#)
[1-More on Nuclear Reactions](#)
[2-More on Nuclear Reactions](#)

10.9 Nuclear Fission

[Nuclear Fission](#)
[1-More on Nuclear Fission](#)
[2-More on Nuclear Fission](#)
[Fission Chain Reaction](#)
[Nuclear Reactor](#)
[1-More on Nuclear Reactor](#)
[2-More on Nuclear Reactor](#)
[Liquid Metal Fast Breeder Reactor \(LMFBR\)](#)
[1-More on Liquid Metal Fast Breeder Reactor \(LMFBR\)](#)
[2-More on Liquid Metal Fast Breeder Reactor \(LMFBR\)](#)

10.10 Fusion Reaction

[Fusion Reaction](#)
[More on Fusion Reaction](#)
[Fusion and Stellar Energy](#)
[More on Fusion and Stellar Energy](#)

10.11 Radiation Exposure

[Radiation exposure](#)
[More on Radiation exposure](#)

10.12 Biological Effects of Radiation

[Biological effects of radiation](#)
[More on Biological effects of radiation](#)
[Biological effects of radiation-problem](#)

10.13 Biological and Medical Uses of Radiation

Protection from Radiation

Biological and Medical uses of Radiation

More on Biological and medical uses of radiation

Treatment of Cancer

Polymerisation, Sterilization and food preservation

More on Polymerisation, Sterilization and food preservation

Radiation Methods in Archaeology

More on Polymerisation, Sterilization and food preservation

10.14 Basic Forces of Nature

Basic forces of nature

More on Basic forces of nature

10.15 Building Blocks of Matter

Building Blocks of Matter

Class-12 (Chemistry)

(Total Videos # 485)

Chapter # 01

Periodic Classification of Elements and (34 Videos)

1.1 Introduction

Introduction to Periodic Law And Periodic Table

Mendeleev's Periodic table

Improvements in Mendeleev's Periodic Table

1.2 The Modern Periodic Table

Groups in Modern Periodic Table

Periods in Modern Periodic Table

Chemical Families

Metals, Non-Metals and Metalloids

1.3 Periodic Trends in Physical Properties

Atomic Size and Atomic Radius

Trend of Atomic Size and Atomic Radius in Periodic Table

Ionic Radius

Ionization Energy

Trend of Ionization Energy in Periodic Table

Ionization Energy Variation within a Group

Ionization Energy Variation Across a Period

Electron Affinity

Trend of Electron Affinity in Periodic Table

Electropositive Character of Metals

Electronegative Character

Melting and Boiling points

Melting and Boiling points variation in a period

Melting and Boiling points variation in a Group

Oxidation State

More on Oxidation State

Electrical Conductance

Hydration Energy

1.4 **Periodic Relationship in Compounds**

Halides

More on Halides

Hydrides

Covalent Hydrides

More on Hydrides

Oxides

More on Oxides

1.5 **The Position of Hydrogen**

Position of Hydrogen

More on Position of Hydrogen

Chapter # 02

s-Block Elements (20 Videos)

2.1 **Introduction**

Physical Properties of Alkali and Alkaline Earth Metals

Peculiar Behaviour of Lithium

More on Peculiar Behaviour of Lithium

Peculiar Behaviour of Beryllium

2.2 **General Behaviour of Alkali Metals**

Trends in Chemical Properties of Alkali Metals

More on Trends in Chemical Properties of Alkali Metals

Trends in Chemical Properties of Alkaline-Earth Metals

- More on Trends in Chemical Properties of Alkaline-Earth Metals
- Properties of Alkali and Alkaline Earth Metals Oxides
- More on Properties of Alkali and Alkaline Earth Metals Oxides
- Properties of Alkali and Alkaline Earth Metals Hydroxides
- Properties of Alkali and Alkaline Earth Metals Carbonates
- More on Properties of Alkali and Alkaline Earth Metals Carbonates
- Properties of Alkali and Alkaline Earth Metals Nitrates
- Properties of Alkali and Alkaline Earth Metals Sulphates
- 2.3 Commercial Preparation of Sodium by Dow**
Electrolysis of Sodium Chloride
- 2.4 Commercial Preparation of Sodium Hydroxide**
Manufacture of NaOH from Brine
- 2.5 Role of Gypsum in Agriculture and Industry**
Role of Gypsum in Agriculture and Industry
Plaster of Paris
- 2.6 Role of Lime in Agriculture and Industry**
Role of Lime in Agriculture and Industries

Chapter # 03

Group III A and Group IVA Elements (24 Videos)

- 3.1 Group IIIA Elements**
Occurrence of Aluminium
Peculiar Behaviour of Boron
- 3.2 Compounds of Boron**
Manufacture of Borax
Properties of Borax
Borax Bead Test
Preparation of Boric acid on Commercial Scale
Properties of Boric acid
- 3.3 Reactions of Aluminium**
Reaction of Aluminium with Air
Reaction of Aluminium with Non-Metals
Reaction of Aluminium with Acids and Alkalies
Uses of Aluminium
- 3.4 Group IVA Elements**
Occurrence of Carbon
Occurrence of Silicon
More on Occurrence of Silicon

- Peculiar Behaviour of Carbon
- 3.5 Compounds of Carbon and Silicon**
Oxides of Carbon
Properties of Silica
Water Glass Preparation
Uses of Water Glass
Silicates
Silicones
- 3.6 Semiconductors**
Semiconductors
- 3.7 Uses of Lead Compounds in Paints**
Compounds of Lead
More on Compounds of Lead

Chapter # 04

Group VA and Group VIA Elements (38 Videos)

- 4.1 Group VA Elements: Introduction**
Occurrence of Nitrogen
- 4.2 Nitrogen and its Compounds**
Preparation and Properties of Dinitrogen Oxide
Nitric Oxide Preparation and Properties
Nitrogen Dioxide Preparation and Properties
Nitrous Acid
Preparation of Nitric Acid in Industry
Preparation of Nitric Acid in Laboratory
Physical Properties of Nitric Acid
Nitric Acid as an Acid
Reaction of Nitric Acid with Carbonates and Bicarbonates
Reaction of Nitric Acid with Non-Metals
Reaction of Nitric Acid with Metals & Metalloids
Reaction of Nitric Acid with Mg and Mn
Reaction of Nitric Acid with Cu, Ag and Hg
Reaction of conc. Nitric Acid with Metals
Reaction of Nitric Acid with Zn
Nitric Acid as Oxidizing Agent
Formation of Aqua Regia

Uses of Nitric Acid

4.3 **Phosphorus and its Compounds**

Allotropes of Phosphorus

Phosphorus Trichloride

Phosphorus Pentachloride

Phosphorus Trioxide

Phosphorus Pentoxide Preparation and Properties

Phosphorus Acid Preparation & Properties

Orthophosphoric Acid

4.4 **Group VIA Elements**

General Characteristics of Group VIA Elements

Occurrence of Oxygen

Occurrence of Sulphur

Similarities and Differences Between Oxygen and Sulphur

4.5 **Sulphuric Acid (H₂SO₄)**

Preparation of Sulphuric Acid through Contact Process

Physical Properties of Sulphuric Acid

Reactions of Sulphuric Acid

More on Reactions of Sulphuric Acid

Reactions of Sulphuric Acid as a Dehydrating Agent

Reactions of Sulphuric Acid as an Oxidizing Agent

Reactions of Sulphuric Acid With Gases, Benzene and Oxidizing Agents

Uses of Sulphuric Acid

Chapter # 05

The Halogens and The Noble Gases (36 Videos)

5.1 **Introduction**

The Halogens

5.2 **Occurrence**

Occurrence of Halogens

5.3 **Peculiar Behaviour of Fluorine**

Peculiar Behaviour of Fluorine

5.4 **Oxidizing Properties**

Relative Reactivities of the Halogens as Oxidizing Agents

More on Relative Reactivities of the Halogens as Oxidizing Agents

5.5 **Compounds of Halogens**

Hydrogen Halides

Hydrogen Fluoride

Properties of Hydrogen Halides

Oxides of Fluorine
Oxides of Chlorine
Oxides of Bromine
Oxides of Iodine
Reactions of Chlorine with Alkalies
Oxyacids of Halogens
More on Oxyacids of Halogens
Perchloric Acid
Bleaching Powder
Preparation of Bleaching Powder in Industry
Manufacture of Bleaching Powder by Beckmann's Method
Physical Properties of Bleaching Powder
Reaction of Bleaching Powder with Water
Reaction of Bleaching Powder with Carbondioxide and Water
Reaction of Bleaching Powder with Strong Acids
Reaction of Bleaching Powder with Ammonia
Reaction of Bleaching Powder with Carbon Dioxide
Uses of Bleaching Powder

5.6 **Commercial Uses of Halogens and Their Compounds**

Importance of Halogens in Daily Life
Uses of Chlorine

5.7 **Noble Gases**

Noble Gases
Properties of Noble Gases
Compounds of Xenon
Fluorides of Xenon
Chemical Reactions of Fluorides of Xenon
Xenon Oxyfluorides
Oxides of Xenon
Uses of Noble Gases

Chapter # 06

Transition Elements (38 Videos)

6.1 **Introduction**

Transition Metals
Introduction to the Transition Elements
Typical and non-Typical Transition Elements

6.2 **Properties of Transition Elements**

Binding Energies of Transition Elements
More on Binding Energies of Transition Elements

Melting and Boiling points of Transition Elements
Paramagnetism of Transition Elements
Oxidation State of Transition Elements
More Characteristics of Transition Elements

6.3 Complex Compounds

Complex Compounds
Components of Complex Compounds
More on Components of Complex Compounds
Chelates
Nomenclature of Complex Compounds
More on Nomenclature of Complex Compounds
Geometry of Complexes

6.4 Iron

Occurrence of Iron
Pig Iron
Cast Iron
Wrought Iron
Steel
Steel Alloys
From Iron to Steel
Manufacture of Steel by Bessemer's Process

6.5 Corrosion

Rusting of Iron
Corrosion of Aluminium
Prevention of Corrosion
Tin Coating
Zinc Coating

6.6 Chromates and Dichromates

Preparation of Potassium Chromate
Properties of Potassium Chromate
Preparation of Potassium Dichromate
Properties of Potassium Dichromate
More on Properties of Potassium Dichromate

6.7 Potassium Permanganate (KMnO₄)

Preparation of Potassium Permanganate
More on Preparation of Potassium Permanganate
Properties of Potassium Permanganate
More on Properties of Potassium Permanganate

Chapter # 07

Fundamental Principles of Organic Chemis (31

Videos)

7.1 Introduction

Concept of Organic Chemistry
Vital Force Theory
Basic Introduction to Organic Chemistry
Modern Definition of Organic Chemistry

7.2 Some Features of Organic Compounds

Features of Organic Compounds
More on Features of Organic Compounds

7.3 Importance of Organic Chemistry

Importance of Organic Chemistry

7.4 Sources of Organic Compounds

Coal
Natural Gas
Petroleum
Fractional Distillation of Petroleum

7.5 Cracking of Petroleum

Cracking of Petroleum
More on Cracking of Petroleum

7.6 Reforming

Reforming of Petroleum

7.7 Classifications of Organic Compounds

Classification of Organic Compound
Types of Acyclic Compounds
Types of Cyclic Compounds

7.8 Functional Group

Functional Groups
More on Functional Groups

7.9 Hybridization of Orbitals and the Shapes of Molecules

Ground and Excited State of Carbon
Sp³ Hybridization
More on Sp³ Hybridization
Sp² Hybridization
Sp Hybridization

7.10 Isomerism

Isomerism
Structural Isomerism
Position Isomerism
Functional group Isomerism

Metamerism
Tautomerism
Cis-trans Isomerism or Geometrical Isomerism

Chapter # 08

Aliphatic Hydrocarbons (67 Videos)

8.1 Introduction

Introduction to Hydrocarbons

8.2 Nomenclature

Common and IUPAC names

Nomenclature of Alkyl Groups

Nomenclature of Alkanes

More on Nomenclature of Alkanes

Nomenclature of Alkenes

Nomenclature of Alkynes

8.3 Alkanes or Paraffins

Saturated Hydrocarbons

Alkanes

More on alkanes

Hydrogenation of Alkenes

Preparation of Alkanes from Alkyl Halides

Decarboxylation of Monocarboxylic Acids

Kolbe's Electrolytic Method

Preparation of Alkanes from Carbonyl Compounds

Preparation of Alkanes from Grignard Reagents

Physical properties of Alkanes

Reactivity of Alkanes

Combustion of Alkanes

Catalytic Oxidation of Alkanes

Nitration of Alkanes

Halogenation of Alkanes

More on Halogenation of Alkanes

Uses of Methane and Ethane

8.4 Alkenes

Alkenes

Dehydrohalogenation of Alkyl Halides

Dehydration of Alcohols

More on Dehydration of Alcohols

Dehalogenation of Vicinal Dihalides

Electrolysis of Salts of Dicarboxylic Acid

Partial Hydrogenation of Alkynes

Physical properties of Alkenes
Addition of Hydrogen in Alkene
More on Addition of Hydrogen in Alkene
Addition of Hydrogen Halides in Alkene
More on Addition of Hydrogen Halides in Alkene
Addition of Sulphuric Acid in Alkene
Addition of Halogens in Alkene
Addition of Hypohalous Acid (HOX) in Alkene
Addition of Oxygen in Alkene
Hydroxylation of Alkene
Combustion of Alkenes
Ozonolysis of Alkene
More on Ozonolysis of Alkene
Polymerisation of Alkenes
Uses of Ethene

8.5 Alkynes

Alkynes
Dehydrohalogenation of Vicinal Dihalides
Dehalogenation of Tetrahalides
Electrolysis of Salts of Unsaturated Dicarboxylic Acid
Preparation of Ethyne
Physical properties of Alkynes
Reactivity of Alkynes
Hydrogenation of Ethyne
Addition of Halogens in Alkynes
Addition of Halogen Acids in Alkynes
Addition of Water in Alkynes
Addition of Ammonia and Hydrogen Cyanide in Alkynes
Oxidation Reactions in Alkynes
Combustion of Ethyne
Conversion of Acetylene to DiVinyl Acetylene
Formation of Neoprene from Vinyl Acetylene
Conversion of Acetylene to Benzene
Acidic Nature of Alkynes
Uses of Acetylene
Comparison of Reactivities of Alkanes, Alkenes and Alkynes
Convert Ethane to Ethyne

Chapter # 09

Aromatic Hydrocarbons (29 Videos)

9.1 Introduction to Aromatic Hydrocarbons

Monocyclic Aromatic Hydrocarbons and their Derivatives
Polycyclic Aromatic Hydrocarbons

9.2 Nomenclature of Monocyclic Aromatic Hyd

Nomenclature of Monosubstituted Benzene

Nomenclature of Disubstituted Benzene

9.3 Benzene

Benzene, Molecular Formula

X-Ray Studies of benzene Structure

Structure of Benzene

The Stability of Benzene

Resonance

9.4 Preparation of Benzene

Preparation of Benzene from cyclohexane and Acetylene

Preparation of Benzene from Alkanes

Preparation of Benzene in the Laboratory

Wurtz-Fittig Reaction

9.5 Reactions of Benzene

Reactivity of Benzene Towards Electrophiles

Halogenation of Benzene

Halogenation of Alkyl benzene

Nitration of Benzene

Sulphonation of Benzene

Friedel-Crafts Reaction, Alkylation

Friedel-Crafts Reaction, Acylation

Reduction of Benzene

Halogenation of Benzene in the Presence of Light

Combustion of Benzene

Catalytic Oxidation of Benzene

Ozonolysis of Benzene

Side Chain Oxidation of Alkyl Benzene

ortho and para Directing Groups

Reactivities of Alkanes, Alkenes and Benzene

9.6 Comparison of Reactivities of Alkanes, Alkenes and Benzene

Reactivities of Alkanes, Alkenes and Benzene

Chapter # 10

Alkyl Halides (19 Videos)

10.1 Introduction

Introduction to Alkyl Halides

10.2 Nomenclature Of Alkyl Halides

Nomenclature of Alkyl Halides

10.3 **Methods of Preparation of Alkyl Halides**

Preparation of Alkyl Halides From Alcohols

10.4 **Reactivity of Alkyl Halides**

Reactivity of Alkyl Halides

10.5 **Reactions of Alkyl Halides**

Nucleophilic Substitution Reactions

Nucleophilic Substitution Bimolecular(SN2)

Nucleophilic Substitution Unimolecular(SN1)

β -Elimination Reactions

E1 Mechanism

E2 Mechanism

Wurtz Reaction

Reduction of Alkyl Halides

Reaction of Alkyl halide with Sodium Lead Alloy(Na4Pb)

10.6 **Grignard Reagent**

Preparation of Grignard Reagent

Reactivity of Grignard Reagent

Reactions of Grignard Reagent with Water, Ammonia and Amines

Reactions of Grignard Reagent with CNCl, Alcohols and CO₂

Reactions of Grignard Reagent with Methanal and Ethanal

Reactions of Grignard Reagent with Propanone and Epoxide

Chapter # 11

Alcohols, Phenols and Ethers (24 Videos)

11.1 **Introduction**

Introduction to Alcohols, Phenols and Ethers

Classification of Alcohols

11.2 **Nomenclature of Alcohols**

Nomenclature of Alcohols

Industrial Preparation of Methanol

Industrial Preparation of Ethanol

Physical Properties of Alcohol

Reactions of Alcohols in which C-O Bond is Broken

Reactions of Alcohols in which O-H Bond is Broken

More on Oxidation of Alcohols

Dehydration of Alcohols

Preparation of Alkyl Halides From Alcohols

11.3 Distinction Between Primary, Secondary

Lucas Test

Distinction Between Methanol and Ethanol

11.4 Uses of Alcohols

Uses of alcohol

11.5 Phenol

Preparation of Phenol

Acidic Behaviour of Phenol

Reactions of Phenol Due to -OH Group

Nitration of Phenol

Sulphonation of Phenol

Halogenation & Hydrogenation of Phenol

Reaction of Phenol with Formaldehyde

11.6 Ethers

Nomenclature of Ethers

Preparation of Ethers

Chemical Reactivity of Ethers

Chapter # 12

Aldehydes and Ketones (23 Videos)

12.1 Introduction

Introduction to Aldehydes and Ketones

12.2 Nomenclature of Aldehydes

Nomenclature of Aldehydes

Nomenclature of Ketones

12.3 Preparation of Aldehydes and Ketones

Preparation of Formaldehyde

Preparation of Acetaldehyde

General Methods of Preparation of Ketones

12.4 Reactivity of Carbonyl Group

Reactivity of Carbonyl Group

12.5 Reactions of Carbonyl Group

Reactivity of Carbonyl Group

Addition of Hydrogen Cyanide in Carbonyl Compounds

More on Addition of Hydrogen Cyanide in Carbonyl Compounds

Aldol Condensation

Cannizaro's Reaction

Reactions of Carbonyl compounds with Hydroxylamine

Reactions of Carbonyl compounds with Hydrazine

Reaction of Carbonyl compounds with 2,4-Dinitrophenylhydrazine
Addition of Alcohols in Ethanal
Reduction of Carbonyl compounds with Sodium Borohydride
Catalytic Reduction of Aldehyde and Ketone
Oxidation of Aldehydes
Oxidation of Ketones

12.6 Identification of Carbonyl Compounds

Detection of Aldehyde and Ketones
Fehling's Solution Test

12.7 Uses of Aldehyde

Uses of Formaldehyde and Acetaldehyde

Chapter # 13

Carboxylic Acids (22 Videos)

13.1 Nomenclature of Carboxylic Acids

Nomenclature of Carboxylic Acids

13.2 General Methods of Preparation

Preparation of Carboxylic Acids from Primary Alcohols & Aldehydes
Preparation of Carboxylic Acids from Nitriles
Preparation of Carboxylic Acids from Grignard Reagents
Preparation of Carboxylic Acids by Hydrolysis of Esters
Preparation of Carboxylic Acids by Oxidative Cleavage of Alkenes

13.3 Physical Characteristics of Carboxylic

Structure of Carboxylic acid

13.4 Reactivity of Carboxyl Group

Reactivity of Carboxyl Group

13.5 Reactions of Carboxylic Acids

Reactions Involving H Atom of the Carboxyl Group
Reactions Involving -OH Group of the Carboxylic Acids
More on Reactions Involving -OH Group of the Carboxylic Acids
Formation of Acid Anhydride
Reactions Involving -COOH Group of the Carboxylic Acids

13.6 Acetic Acid

Preparation of Acetic Acid in Laboratory
Manufacture of Acetic Acid

13.7 Amino Acids

Amino Acids
Nomenclature of Amino Acids
Structure of Amino Acids

Synthesis of Amino Acids
Reactions of Amino Acids
Test of Amino Acids, Ninhydrin Test
Peptides and Proteins

Chapter # 14

Macromolecules (42 Videos)

14.1 Introduction

Macromolecules

14.2 Structure of Polymers

Structure of Polymers

14.3 Types of Polymers

Types of Polymers , Homopolymer

Thermoplastics

Manufacture of Thermoplastic

More on Manufacture of Thermoplastic

Thermosetting Plastics

Manufacturing of Thermosetting Plastic

14.4 Polymerization Process

Addition Polymerisation

Condensation Polymerisation

More on Addition Polymerisation

More on Condensation Polymerisation

14.5 Brief Description of Synthetic Polymers

Polyvinyl Chloride and Polystyrene

Polystyrene

Polyvinyl Acetate Acrylic and Epoxy Resins

Nylon

14.6 Biopolymer

Carbohydrates

Classification of Carbohydrates, Monosaccharides

Disaccharides

Polysaccharides

Starch

Cellulose

Glycogen

Protein

Classification of Proteins

Structure of Proteins

Lipids

Sources of Lipids
Structure and Composition of Fats and Oils
Classification of Lipids
Chemical Properties of Lipids
Saponification
Saponification Number & Iodine Number
Rancidity of Fats and Oils
Steroids
Phospholipids
Enzymes
Classification of Enzyme
Properties of Enzymes
Factors Affecting Enzyme Activity Importance of Enzymes as Bio-Catalysts
Nucleic Acids

Chapter # 15

Common Chemical Industries in Pakistan (11

Videos)

15.1 Introduction

Introduction to Chemical Industries

15.2 Fertilizers

Manufacture of Fertilisers

15.3 Elements Essential for Plant Growth

Micro-Nutrients and Macro-Nutrients

15.4 Classification of Fertilizers

Manufacture of Fertilisers

Manufacture of Urea

Importance of Urea

Phosphatic Fertilizers

15.5 Cement

Raw Materials and Processes Involved in Manufacturing of Cement

15.6 Paper Industry

Steps Involved in Neutral Sulphite Semi Chemical Process

More on Steps Involved in Neutral Sulphite Semi Chemical Process

Paper Making Machine

Chapter # 16

Common Chemical Industries in Pakistan (11 Videos)

16.1 Introduction

Composition of Atmosphere
Biosphere

16.2 Types of Pollution

Air Pollution
Carbon Monoxide and Chlorofluorocarbons as Air Pollutants
Pollutants of Nitro Compound
Sulphur Dioxide and Nitrogen Dioxide as Air Pollutants
Acid Rain
Smog as Pollutant
Ozone Depletion due to Oxides of Nitrogen and Sulphur
Role of Chlorofluorocarbons in Destroying Ozone
Water Pollution
Disease-causing Wastes (Domestic Effluents)
Detergents as Pollutant
Chemical and Biological Control of Pests
Water Pollutants - Synthetic Organic Compounds
Water pollutants, Oxygen-Demanding Wastes(Industrial Effluents)
Agricultural Water Pollutants
Effects of Water Pollution
Nutrient and Thermal Water Pollution

16.3 Factors Affecting the Quality of Water

Dissolved Oxygen(DO)
Biochemical Oxygen Demand (BOD)
Chemical Oxygen Demand (COD)
Purification of Water
Water Disinfection by Chlorine

16.4 Solid Waste Management

Treatment of Industrial Waste
Recycling Metals and its Environmental Impact
Advantages of Recycling

Class-12 (Biology)

(Total Videos # 469)

Chapter # 01

Homeostasis (45 Videos)

1.1 Concepts in Homeostasis
Osmoregulation, Thermoregulation and Excretion

1.2 Osmoregulation
Balance of Water and Solutes in the Body
Hydrophytes and Halophytes
Mesophytes
Osmoregulation in Animals
Osmoregulation in Different Environments
Marine Environments
Terrestrial Environments

1.3 Excretion
Excretion in Plants
Excretion in Animals
Nature of Excretory Products in Relation to Habitats
Uric Acid
Urea

1.4 Excretion In Representative Animals
Excretion in Hydra
Excretory Organ in Planaria
Excretory Organ in Earthworm
Excretory Organ in Cockroach

1.5 Excretion in Vertebrates
Excretion in Human
Excretory Organs, Liver
Excretion in Vertebrates, Nephrons, Kidney
Urinary system
Structure of Kidney

Structure of Nephron
Blood Circulation to Nephron
Type of Nephron
Functions of Kidney
Function of Kidney
Effects of Hormones on The Working of Kidney
Urea Formation, Kidney Filtration
Concentration of Excretory Product
Kidney as Osmoregulatory Organ
Kidney Stone
Lithotripsy
Kidney (Renal) Failure
Peritoneal Dialysis
Kidney Transplant
Kidney Transplant

1.6 Thermoregulation

Adaptations in Plants to High Temperature
Adaptations in Plants to Low Temperature

1.7 Mechanism In Animals

Classification of Animals on the Basis of Their Body Temperature
Classification of Animals on the Basis of Heat Production
Regulation of Heat Exchange Between Animals and Environment

1.8 Thermoregulation in Mammals(Human)

Regulatory Strategies
Thermostat Function and Feedback Controls in Human and Fever
Pyrexia and Pyrogens

Chapter # 02

Support And Movement (73 Videos)

2.1 Concept And Need

Support, Movement and Locomotion

2.2 Support in Plants

Support in Plants
Collenchyma Tissues
Sclerenchyma Tissues
Secondary Growth
Heart Sap Wood

2.3 Movements in Plants

Types of Movements

Tactic Movements
Tactic Movements
Thermotaxis and Chemotaxis
Turgor Movements
Growth Movements
Tropic Movements
More on Tropic Movements
Geotropism and Hydrotropism
Nastic Movement
Types of Nastic Movement
More on Nastic Movements

2.4 Role of Plant Growth Substance In Plant

Role of Plant Growth Substance in Plant Movement

2.5 Support And Movements In Animals

Support and Locomotion in Animals
Hydrostatic Skeleton
Exoskeleton
Ecdysis
Function of Skeletal System
Endoskeleton
Bones
Cartilages

2.6 Human Skeleton

Human Skeleton, Axial Skeleton
Skull
Ribs
vertebral Column
Appendicular Skeleton
Pelvic Girdle and Hind Limb
Hind Limb
More on Joints
Types of Joints
Synovial Joint

2.7 Deformities of Skeleton

Genetic Causes
Hormonal Causes of Skeleton Deformities
Nutritional Causes
Disc-Slip
Spondylosis
Sciatica
Arthritis and its Types
Arthritis and its Types

2.8 Repair of Broken Bones

Repair of Broken Bones

2.9 Muscles

Muscular System

Smooth and Cardiac Muscles

Skeletal Muscles , Skeletal Muscle Fiber

More on Skeletal Muscles , Skeletal Muscle Fiber

Ultra Structure of Microfilaments

Sliding Filament Model

How Bridges are Controlled

Controlling the Actin-Myosin Interaction by Ca⁺⁺ ions

Energy for Muscle Contraction, Muscle Fatigue

Tetany and Cramp

2.10 Arrangement of Skeletal Muscles for Movement of Skeleton

Origin, Insertion, Belly, Ligaments and Tendons

Muscles and Movements

Arrangement of Skeletal Muscles for Skeletal Movement

2.11 Locomotion In Protoctista And Invertebrates

Locomotion In Euglena

Locomotion In Amoeba

More on Locomotion in Euglena and Amoeba

Locomotion In Paramecium

More on Locomotion in Paramecium

Locomotion in Jelly Fish and Earthworm

Locomotion in Cockroach

Locomotion in Star Fish and Snail

2.12 Locomotion And Skeleton in Vertebrates

Locomotion in Fish

Locomotion in Amphibian

Locomotion in Reptiles

Locomotion in Air

Locomotion in Mammals

Evolutionary Changes in The Arrangement of Bones

Chapter # 03

Coordination And Control (56 Videos)

3.1 Introduction

Stimuli, Receptors, Effectors, Response

3.2 Coordination In Plant

Control Through Hormones in Plants

3.3 Plants Movements

Types of Movements

3.4 Responses To Environmental Stresses In

Responses to Environmental Stresses

3.5 Defense Against Pathogens in Plants

Defense Against Pathogens in Plants

3.6 Biological Clocks and Circadian Rhythms

Biological Clocks and Circadian Rhythms

3.7 Plant Hormones

Auxins and Gibberellins

Cytokinins, Abscisic Acid and Ethene

3.8 Coordination In Animals

Types of Coordination

3.9 Nervous Coordination

Steps Involved in Coordination

Coordinators, Effectors and Response

Working of Sensory Receptors With Special Reference to Skin

Nerve Cell or Neuron

Nerve Types

Types of Neurons

Nervous Tissue

Reflex Action

Nerve Impulse and Resting Membrane Potential

Generation and transmission of nerve impulse

Synapse

3.10 17Evolution of Nervous System

Evolution of Nervous System

Nervous System of Hydra

Nervous System of Planaria

3.11 Human Nervous System

The Divisions of Brain, Forebrain

The Divisions of Brain, Forebrain

Midbrain and Hindbrain

Spinal Cord

Spinal Cord

Peripheral Nervous System

More on Peripheral Nervous System

Peripheral Nervous System

More on Peripheral Nervous System (PNS)

3.12 Nervous Disorders

Parkinson's Disease

Epilepsy
Alzheimer's Disease
Effects of Drugs on Nervous Coordination

3.13 Chemical Coordination

Important Endocrine Glands
Mode of Hormone Action

3.14 Endocrine Glands of Mammals

Pituitary Gland
Pituitary's Median lobe and posterior lobe
Thyroid Gland
Parathyroid Glands
Pancreas
Adrenal Glands
Disorders of Medullary and Cortical Hormones
Gut
Gonads

3.15 Feed Back Mechanism

Feedback Mechanism
Comparison of Nervous Coordination and Chemical Coordination

3.16 Behavior

Innate Behavior
More on Non - Orientation Behaviour
Non-orientation Behavior
Learning Behavior
More on Learning
Social Behaviors
More on Social Behaviors

Chapter # 04

Reproduction (28 Videos)

4.1 Reproduction

Reproduction, Asexual and Sexual reproduction

4.2 Reproduction In Plants

Reproduction in Plants
Life Cycle of Moss
Life Cycle of Pinus
Life Cycle of a Flowering Plant
Parthenocarpy
Seed Dormancy

Fruit Ripening
Photoperiodism
Mechanism of Photoperiodism
Vernalisation

4.3 Reproduction In Animals

Regeneration and Parthenogenesis

4.4 Tissue Culturing And Cloning

Tissue Culturing and Cloning

4.5 Identical Twins

Identical Twins

4.6 Sexual Reproduction

Mating and Fertilization

Fertilization

Oviparity and Viviparity

4.7 Reproduction In Man

Male Reproductive System

More on Structure of Male Reproductive System

Function of Male Reproductive System

Hormonal Control of Male Reproductive System

Female Reproductive System

Function of Female Reproductive System

Menstrual Cycle

Hormonal Control of Reproductive Cycles

4.8 Test Tube Babies

Treatment of Infertility (Invitro Fertilization)

4.9 Sexually Transmitted Diseases (STD)

AIDS, A Sexually Transmitted Disease

Syphilis, Gonorrhoea

Chapter # 05

Growth And Development (23 Videos)

5.1 Growth And Development In Plants

From Seed to Seedling

Apical Meristems, Intercalary Meristems and Lateral Meristems

Phases of Growth

Secondary Growth

Condition of Growth

5.2 **Growth And Development In Animals**

Growth and Development in Animals
Development of Chick (Fertilization and Incubation)
Cleavage, Morula
Blastula and Gastrulation
Notochord and Mesoderm Formation
Neurulation
Hans Spemann's Experiment
Roux-Weismann Hypothesis and Hans Driesch's Experiment
Role of Cytoplasm in Development
Role of Nucleus in Development
Cell Differentiation and Its Mechanism
Embryonic Induction (First Experiment)
Embryonic Induction (Second Experiment)
Embryonic Induction (Third Experiment)

5.3 **Aging**

Signs and Symptoms of Aging

5.4 **Regeneration**

Regeneration and Parthenogenesis

5.5 **Abnormal Development**

Abnormal Development

Chapter # 06

Chromosomes And DNA (43 Videos)

6.1 **Chromosomes**

Organisms Have Number of Chromosomes Specific to Their Species

6.2 **Types of Chromosomes**

Gene, Chromosome, Chromatin
Types of Chromosomes
Number and Structure of Chromosome

6.3 **Composition of Chromosome**

Composition of Chromosome

6.4 **The Chromosomal Theory of Inheritance**

The Chromosomal Theory of Inheritance

6.5 **DNA As Hereditary Material**

Gamete - A Vehicle of Inheritance
DNA as Hereditary Material, vehicle
More on DNA as Hereditary Material, vehicle
Mononucleotide
Nucleotide and Polynucleotide
Comparison of DNA and RNA
Significance of Base Sequence
Watson and Crick Model of DNA
Types of Replication
Replication of DNA
DNA Replication in Prokaryotes and Eukaryotes
The Meselson-Stahl Experiment
Replication of DNA
More on Mechanism of DNA Replication

6.6 **What Is A Gene?**

What is a Gene?
Chromosomes, Genes and DNA
Structure of a Gene
Genes and Enzymes
Experiment of Beadle and Tatum on Neurospora
One-Gene/One-Polypeptide
How Does the DNA of Chromosome work?
Translation

6.7 **Cells Use RNA To Make Protein**

Types of RNA
Transcription
Advance Transcription
More on Transcription
Post-Transcriptional Modification of mRNA
Difference between Translation in Prokaryotes and Eukaryotes

6.8 **Genetic Code**

Genetic Code

6.9 **Translation**

Translation
Advance Translation, Protein Synthesis
More on Translation

6.10 **Mutations**

Mutations
Importance of Mutation
Chromosomal Mutations
Chromosomal Mutations (Turner Syndrome)
Point Mutation

Chapter # 07

Cell Cycle (17 Videos)

7.1 Introduction of Cell Cycle

Cell Cycle

7.2 Mitosis

Mitosis, Prophase

Anaphase, Telophase of Mitosis

More on Mitosis (Cytokinesis)

Significance of Mitosis

Cancer (Uncontrolled Cell Division)

Cancer Types

Carcinogens

Benign or Malignant

7.3 Meiosis

Phases of Meiosis

Meiosis

Meiosis I (Prophase I)

Meiosis-II

Importance of Meiosis

7.4 Meiotic Errors (Non-Disjunction)

Chromosomal Mutations

Chromosomal Mutations (Turner Syndrome)

Apoptosis and Necrosis

Chapter # 08

Variation And Genetics (45 Videos)

8.1 Genes, Alleles And Gene Pool

Genes, Alleles, Locus, Phenotype, Genotype

Gene Pool

8.2 Mendel's Laws of Inheritance

Mendel's Law of Segregation

Mendel's Interpretation

Test Cross

Punnet Square, Test Cross

Mendel's Law of Independent Assortment

8.3 Dominance Relations

Complete Dominance
Incomplete Dominance
Co-Dominance
Co-Dominance

8.4 MN Blood Type or Blood Group System

MN Blood Type (Blood Group System)
Over Dominance
Multiple Alleles
ABO-Blood Group
Rh Blood Group System
Erythroblastosis fetalis

8.5 Epistasis

Epistasis
Bombay Phenotype

8.6 Pleiotropy

Pleiotropy

8.7 Continuously Varying Traits

Qualitative Traits
Quantitative Traits
Wheat Grain Color
Human Skin Color

8.8 Gene Linkage

Gene Linkage

8.9 Crossing Over

Crossing Over

8.10 Sex Determination

Genetic Recombination
Sex Determination, Chromosome in Drosophila
Patterns of Sex Determination
Chromosome in Man
Comparison of Chromosomal Determination of Sex Between
Drosophila and
Sex Determination in Plants

8.11 Sex Linkage

Sex Linkage in Drosophila
Test Cross
Reciprocal Cross as a Confirmatory Test
Sex-Linkage in Human
Haemophilia
More on Haemophilia
Sex Linked Inheritance, Colour Blindness
Night blindness and Color Blindness

X- linked Dominant Inheritance
Y- linked Inheritance
Sex Limited Trait, Sex Influenced trait

8.12 Diabetes Mellitus And Its genetic Basis

Diabetes Mellitus and Its Genetic Basis
Diabetes Mellitus Type II and Its Genetic Basis

Chapter # 09

Biotechnology (51 Videos)

9.1 Cloning of A Gene

Recombinant DNA Technology
Advance Recombinant DNA Technology, How to Get a Gene\
Recombinant DNA Technology Depends on Enzymes
Molecular Scissors: Restriction Endonucleases
Molecular Carrier: Vector
More on Molecular Carrier (Vector)
Molecular Carrier (Vector) Cosmid and Artificial Chromosome
DNA Ligase and Expression System
Expression of the Recombinant DNA
Genomic Library
The Polymerase Chain Reaction
Components of PCR
Mechanism of PCR
Applications of PCR
Analyzing DNA
Procedures of DNA Analysis
Autoradiography
Application of DNA Analysis
Gene Sequencing
Sanger's Method
Gel Electrophoresis
Visualization of DNA Fragments In DNA Sequencing
Maxam-Gillbert Method
Automatic DNA Sequencing

9.2 The Human Genome Project

The Human Genome Project
Benefits of Human Genome Project

9.3 Biotechnology Products

Transgenic Bacteria
Role of Transgenic Bacteria in Human Welfare

Transgenic Plants
Transgenic Animals
Agrobacterium Mediated Transformation
Electroporation Method
Application of Transgenic Plants
Application of Transgenic Animals
Animal Cloning

9.4 Gene Therapy

Steps of Animal Cloning
Gene Therapy
Gene Therapy (Ex-Vivo)
Gene Therapy In-Vivo Method
Cystic Fibrosis

9.5 Tissue Culture

Tissue Culture
Types of Tissue Culture
Callus Culture
Meristem Culture
Anther Culture
Embryo Culture
Ovary Culture
Agricultural plants With Improved Traits
Role of Transgenic Bacteria in Human Welfare
Application of Transgenic Plants
Application of Transgenic Animals

Chapter # 10

Evolution (12 Videos)

10.1 Concept of Evolution VS Special Creation

Concept of Evolution VS Special Creation

10.2 Evolution From Prokaryotes to Eukaryotes

Evolution From Prokaryotes to Eukaryotes

10.3 Inheritance of Acquired Characteristics

Inheritance of Acquired Characteristics
Neo-Darwinism - The Modern Evolutionary Synthesis
Biogeography, The Fossil Record and Comparative Anatomy

Comparative Embryology and Molecular Biology

10.4 Natural Selection And Artificial Select

Gene Pool

Gene Frequencies and Their Role in Evolution

Hardy-Weinberg Theorem

More on Hardy-Weinberg Theorem

Factors Affecting Gene Frequency

10.5 Endangered Species

Endangered Species

Chapter # 11

Ecosystem (27 Videos)

11.1 Introduction

Ecology

11.2 Ecosystem

Components of Ecosystem

Biosphere

Autecology and Synecology

11.3 Components of Ecosystem

Biotic Components

Abiotic Components

Abiotic Components (Temperature and Water)

Abiotic Components (Fire, Atmosphere and Wind)

Processes in Ecosystem and Interaction Between Biotic Components

Food Chain

Food Web

11.4 Succession

Succession

Two Major Form of Succession

Secondary Succession

Stages of Succession

Xerosere

More on Xerosere

Predation, Parasitism and Its Significance

Differences Between a Parasite and a Predator

Symbiosis

Symbiosis

More on Symbiosis

11.5 Biogeochemical Cycles

The Nitrogen Cycle
More on Nitrogen Cycle
Nitrogen Depletion & Its Remedies
The Flow of Energy in Food Chain of An Ecosystem
Energy Relations Between Different Trophic Levels

Chapter # 12

Some Major Ecosystems (22 Videos)

12.1 Aquatic or Hydrospheric Ecosystem

Aquatic or Hydrospheric Ecosystem and Its Productivity
Fresh Water (Standing Water Bodies)
Limnetic and Profundal zone of lakes
Running Water Bodies
Running Water Habitat
Life in Ocean
Oceanic zone

12.2 Terrestrial or Lithospheric Ecosystem

Aquatic or Hydrospheric Ecosystem and Its Productivity
Adaptation and Division for Terrestrial Ecosystem

12.3 Some Major Ecosystems In Pakistan

Temperate Deciduous Forests
More on Temperate Deciduous Forests
Coniferous Alpine and Boreal Forests
Taiga
The Grass Land Ecosystem
More on Grass Land Ecosystem
Savannah
Desert Ecosystem
Desert Ecosystem (Adaptations in plants)
Desert Ecosystem (Adaptations in animals)
Tundra Ecosystem
Alpine Tundra
Man's Role in Ecosystems

Chapter # 13

Man And His Environment (27 Videos)

13.1 Renewable And Non-Renewable Resources

Renewable and Non-Renewable Resources
Renewable Resources (Land and Wildlife)
Conventional Energy Resources
Non - Conventional Energy Resources
Tidal Power and Wind Power
Solar energy
Geothermal Power

13.2 Degradation And Depletion of Resources

Nuclear Power
Degradation and Depletion of Resources, Modification of Environment

13.3 Man's Impact On Environment

Human Impact on Environment

13.4 Deforestation And Afforestation

Deforestation, Soil Erosion

13.5 Pollution

Air Pollution
Pollutants
Depletion of Ozone Layer
Depletion of Ozone
Green House Effect
Global Warming
Effect of Global Warming
Carbon Dioxide and Global warming
Acid Rain
Mechanism of Acid Rain
Effect of Acid Rain
Land Pollution
Effects of Water Pollution
Nutrient and Thermal Water Pollution
Eutrophication or Algal Bloom, Industrial Effluents

13.6 Health and Diseases

Insecticides, Herbicides and Fertilizers

Class-12 (Statistics)

(Total Videos # 421)

Chapter # 01

Representation and Exploration of Data (36 Videos)

1.1 Exploring and Interpreting Data

Data

Exploring Data

Interpretation of Data

Introducing Parameters and Statistic

Basic Terminologies in Statistics
Accuracy of Measurements & Errors
Qualitative/Quantitative Data
Types of Data(Continuous/Discrete)
Types of Data By Source

1.2 Frequency Distribution

Construction of Continuous Frequency Table
Problem on Construction of Continuous Frequency Table
Discrete Frequency Distribution
Cumulative Frequency Distribution

1.3 Charts/Diagrams

Charts/Diagrams
Graphical Representation of Data-Horizontal/Vertical Bar Graph
Graphical Representation & Interpretation of Data-Multiple Bar Graph
Component Bar Chart
Percentage Component Bar Chart
Composite Bar Chart
Graphical Representation & Interpretation of Data- Pie Graph
Pictograms

1.4 Graphs

Graphs
Interpretation of Data Through Graphs
Creating a Histogram
Problem on Constructing Histogram with Equal Intervals
Frequency Polygon
Cumulative Frequency Polygon
Graphical Representation & Interpretation of Data-Dot Graph
Representation and Interpretation of Data through Stem and Leaf
Graphical Representation & Interpretation of Data- Line Graph
Graph of Time Series
Difference Between Histogram and Histogram

1.5 Types of Frequency Curves

Frequency Curve
Common Shapes of Frequency Curves
Positively Skewed Frequency Curves
Negatively Skewed Frequency Curves

Chapter # 02

Measure of Central Tendency or Averages (47

Videos)

2.1 Averages

Average

Applications of Different Averages

2.2 Arithmetic Mean

Arithmetic Mean for Ungrouped Data

Problem on A.M of Ungrouped Data by Direct Method

Arithmetic Mean of Grouped Data by Direct Method

Problem on A.M for Grouped Data by Direct Method

Arithmetic Mean of Ungrouped Data using Short-cut Method

Problem on A.M for Ungrouped Data by Short formula Method

Arithmetic Mean of Grouped Data using Short-cut Method

Problem on A.M for Grouped Data by Short formula Method

Arithmetic Mean of Ungrouped Data using Coding Method

Problem on A.M for Ungrouped Data by Coding Method

A.M for Grouped Data by Coding Method

Problem on A.M for Grouped Data by Coding Method

2.3 Weighted/Combined Mean

Combined Arithmetic Mean

Where to Use Arithmetic Mean

Applications of Weighted Averages

Introducing Weighted Average

Problem - Weighted Average for Ungrouped Data

Properties of Arithmetic Mean

More on Properties of Arithmetic Mean

2.4 Median and Quantiles

Median for Ungrouped Data

Median of Grouped Data

Quartiles for Individual Observations

More on Quartiles for Individual Observations

Problem-Quartiles for Individual Observations

Quartiles for a Frequency Distribution

Problem-Quartiles for a Frequency Distribution

Estimating Quartiles for Grouped Data using Graph

Quantiles from Discrete Data

More on Quantiles from Discrete Data

Quartiles From Grouped Data

More on Quartiles From Grouped Data

Deciles and Percentiles from Grouped Data

More on Deciles and Percentiles from Grouped Data

Problem - Deciles and Percentiles from Grouped Data

Problem - Deciles and Percentiles from Grouped Data

2.5 Mode

The Mode

2.6 Geometric Mean and Harmonic Mean

Geometric Mean of Ungrouped Data
Geometric Mean for Grouped Data
Harmonic Mean for Ungrouped Data
Harmonic Mean for Grouped Data
Where to Use Harmonic Mean
Where to Use Geometric Mean
Change in Origin and Scale
Empirical Relationship Between Mean, Median and Mode
Relationship Between Arithmetic, Geometric and Harmonic mean

Chapter # 03

Measures of Dispersion (63 Videos)

3.1 Dispersion

Applications of Dispersion
Dispersion

3.2 Range

Range of Ungrouped Data
Problem on Calculation of Range for Raw or Ungrouped Data
Calculation of Range for Grouped Data
Problem 1: Calculation of Range for Grouped Data

3.3 Mean Deviation

Mean Deviation of Ungrouped Data
Problem-Mean Deviation for Ungrouped Data by Mean
Problem-Mean Deviation for Ungrouped Data by Median
Mean Deviation of Ungrouped Data from Mode
Problem-Mean Deviation for Ungrouped Data by Mode
Mean Deviation of Grouped Data from Mean
Problem-Mean Deviation for Grouped Data by Mean
Mean Deviation of Grouped Data from Median
Problem-Mean Deviation for Grouped Data by Median
Mean Deviation for Grouped Data by Mode
Problem-Mean Deviation for GroupedData by Mode

3.4 Quartile Deviation

Concept of Quartile Deviation
Problem-Concept of Quartile Deviation
Interquartile Range for Data Set Represented in Different Ways
More on Interquartile Range for Data Set Represented in Different Ways

3.5 Variance and Standard Deviation

Variance and Standard Deviation

Problem on Introduction to Variance & S.D
Variance and Standard Deviation of Ungrouped Data
Calculation of Variance by Direct Method
Variance and Standard Deviation of Ungrouped Data by Short Method
Variance and Standard Deviation of Ungrouped Data by Short-cut Method
Variance and Standard Deviation of Grouped Data
Variance and Standard Deviation of Grouped Data by Short Method
Variance and Standard Deviation of Grouped Data by Short-cut Method
Variance and Standard Deviation of Grouped Data by Coding Method
Effect of Change of Origin and Scale on S.D
Properties of Variance and Standard Deviation
More on Properties of Variance and Standard Deviation
More on Properties of Variance and Standard Deviation

3.6 Coefficient of Dispersion

Absolute and Relative Dispersion
Coefficient of Dispersion and Its Measure
Range Coefficient of Dispersion and its measure
Problem-Range Coefficient of Dispersion and its measure
Coefficient of Variation and its Measure
More on Problem-Coefficient of Dispersion and Its Measure
Quartile Coefficient of Relative Dispersion and its Measure
Quartile Coefficient of Relative Dispersion and its Measure
Mean Coefficient of Dispersion

3.7 Moments

Introducing Moments
Introducing Moments
More on Introducing Moments
Problem-Introducing Moments
More on Problem-Introducing Moments
Problem-Moments for group data
Problem-Moments for group data
Prob-Relation Between Mean Moments and Raw Moments
More on Prob-Relation Between Mean Moments and Raw Moments

3.8 Skewed vs Unskewed Curves

Introducing Skewness
Skewed Vs Unskewed Curves
More on Skewed Vs Unskewed Curves
Measures of Skewness
More on Measures of Skewness
Problem-Measures of Skewness

3.9 Kurtosis

Kurtosis and Its Measurements
More on Kurtosis and Its Measurements
Problem-Measures of Kurtosis
More on Problem-Measures of Kurtosis

Chapter # 04

Index Numbers (28 Videos)

4.1 Introduction to Index Numbers

Index Number

Applications of Index Numbers

Death Rates and Birth Rates

4.2 Main Steps to Construct Price Index Num

Calculating Index Number By Fixed Base Method

More on Calculating Index Number By Fixed Base Method

Calculating Index Number By Chain Base Method

4.3 Unweighted and Weighted Price Index Num

Calculation of Unweighted Index Number by Simple Aggregative Method

Problem-Unweighted Index Number by Simple Aggregative Method

Calculation of Unweighted Index Number by Simple Average Method

Problem-Unweighted Index Number by Simple Average Method

Calculation of Unweighted Index Number by Average of Relative Method

Weighted Aggregative Price Index Numbers By Laspeyres Method

Weighted Aggregative Price Index Numbers By Paasches Method

Weighted Aggregative Price Index Numbers By Fishers Method

4.4 Quantity Index Numbers

Quantity Index Number

Problem - Simple Aggregative Quantity Index Number

Problem - Weighted Aggregative Quantity Index Number

Problem - Simple Average of Relatives Quantity Index Number

Problem - Weighted Average of Relatives Quantity Index Number

4.5 Value Index

Value Index Number

4.6 Theoretical Tests of Index Number

Tests of Index Number

More on Tests of Index Number

Problem - Time Reversal Test

Problem - Factor Reversal Test

4.7 Consumer Price Index Numbers

Consumer Price Index Numbers

Consumer Price Vs Wholesale Price Index Numbers

Problem- Consumer Price Vs Wholesale Price Index Numbers

Chapter # 05

Regression and Correlation Analysis (06 Videos)

5.1 Regression Analysis

Introduction to Regression
Deterministic and Probabilistic Relations or Models
Scatter Diagram
Approximating Line by the Principle of Least Squares

5.2 Correlation

Correlation
Pearson Product Moment Correlation Coefficient

Chapter # 06

Analysis of Time Series (15 Videos)

6.1 Time Series

Introducing Time Series
Applications of Time Series

6.2 Components of Time Series

Secular Trend
Seasonal Variations
Cyclical Fluctuations
Irregular or random variations

6.3 Estimation of Secular Trend

Method of Free Hand Curve
Method of Semi-Averages
How to Calculate Moving Averages
Applications of Moving Averages
Problem - Application for Moving Averages
Estimating Secular Trend by Method of Least Squares
Fitting a Parabola or second Degree Curve
Detrending
Time Series Decomposition

Chapter # 07

Set Theory (21 Videos)

7.1 Set Theory

- Sets
- Types of Set
- Subsets
- Basic Operations of Sets
- Venn Diagram

7.2 Algebra of Sets

- Commutative Law of Sets
- Associative Laws
- Idempotent Laws of Sets
- Identity Laws of Sets
- Complementation Law
- Law of Double Complementation
- Law of Empty Set and Universal Set
- Distributive Laws

7.3 Counting Methods

- A Basic Counting Procedure
- Introducing Factorials
- Problem- Introducing Factorials
- Introducing Permutations
- Problem- Introducing Permutations (Distinct Objects)
- Permutations When the Objects are Not Distinct
- Introduction to Combinations
- Problem1-Introducing Combinations

Chapter # 08

Introduction to Probability (31 Videos)

8.1 Basic Probability

- Introducing Probability
- Random Experiment
- Sample Space
- Basic Terminologies used in Probability
- Types of Events
- Probability for Multiple Event

Problem - Probability for Multiple Event
Mutually Vs Non-Mutually Exclusive Events
Problem - Mutually Vs Non-Mutually Exclusive Events
Equally Likely Vs Exhaustive Events
Conditional Probability
Properties of Probabilities

8.2 **Addition Law for Probability**

Addition Law of Probability
More on Applications of Addition of Probabilities
Addition Laws of Probability
Problem-Addition Laws of Probability
Addition of Probabilities of Overlapping Events by Venn Diagram
Problem-Addition of Probabilities of Overlapping Events by Venn Diagram
Addition of Probabilities of Disjoint Events by Venn Diagram
Addition of Probabilities of Subset Events

8.3 **Multiplication Law for Probability**

Multiplication Law of Probability
Application of Multiplication Laws of Probabilities
More on Application of Multiplication Laws of Probabilities
Multiplication of Probabilities of Dependent Events
Problem- Multiplication of Probabilities of Dependent Events
Multiplication of Probabilities of Independent Events
Problem-Multiplication of Probabilities of Independent Events

8.4 **Conditional Probability**

Conditional Probability
Application of Conditional Probability
Conditional Probability By Sample and Reduced Sample Space Approach
Prob-Conditional Probability By Sample and Reduced Sample Space Approach

Chapter # 09

Random Variables and Distributions (43 Videos)

9.1 **Random Variables**

Random Variables
Discrete Vs Continuous Random Variable

9.2 **Discrete Probability Distribution**

Introducing Probability Distribution
Probability Mass Function
Probability Distribution of Discrete Random Variable
More on Probability Distribution of Discrete Random Variable

Problem - Probability Distribution of Discrete Random Variable
Cumulative Distribution and Probability Mass Function
The Expected Value of Random Variable
Use of Expected Value in Decision Making
More on Use of Expected Value in Decision Making

9.3 Continuous Probability Distribution

The PDF of Continuous Distribution
More on The PDF of Continuous Distribution
Finding Area Under the Curve with Trapezoidal Rule
More on Finding Area Under the Curve with Trapezoidal Rule
Probability Density Function using Integration Method
Problem-Probability Density Function using Integration Method
More on Problem-Probability Density Function using Integration Method
Cumulative Distribution and Probability Density Function
Problem-Cumulative Distribution and Probability Density Function

9.4 The Expectation of Random Variable

Expectation
Applications of Expectation
How Probability Helps Expectations
The Expectation of a Discrete Distribution
Problem1-The Expectation of a Discrete Distribution
Problem2-The Expectation of a Discrete Distribution
More on Problem2-The Expectation of a Discrete Distribution
Laws of Expectation
More on Laws of Expectation
Addition and Subtraction Laws of Expectation
Multiplication Law of Expectation
Problem-Laws of Expectation

9.5 Properties of Variances

Properties of Variance1
Properties of Variance2
Properties of Variance3
Properties of Variance4
Problem1 - Properties of Variance
Problem2 - Properties of Variance

9.6 Sum or Differences of Variances of Random Variables

Variance of the Sum or Difference of Two Random Variables1
Variance of the Sum or Difference of Two Random Variables2
Variance of the Sum or Difference of Two Random Variables3
Variance of the Sum or Difference of Two Random Variables4
Problem-Variance of the Sum or Difference of Two Random Variables

Chapter # 10

Binomial and Hypergeometric Distribution (14

Videos)

10.1 The Binomial Distribution

The Bernoulli Distribution

The Binomial Distribution

More on Binomial Distribution

Visualizing Binomial Distribution

Probability of Binomial Distribution - Example

Binomial Distribution for All Possible Value of Random Variable

More on Binomial Distribution for All Possible Value of Random Variable

Problem- Probability of Binomial Distribution

Binomial Frequency Distribution

Mean of Binomial Distribution

Variance of Binomial Distribution

10.2 The Hypergeometric Distribution

Introducing Hypergeometric Distribution

More on Hypergeometric Distribution

Properties of Hypergeometric Distribution

Chapter # 11

The Normal Distribution (12 Videos)

11.1 The Normal Distribution

Introducing Normal Distribution

Cumulative Distribution Function of Normal Distribution

Standard Normal Distribution

Characteristics of the Normal Probability Distribution

Areas under the Normal Curve

Tabulated Areas of Normal Distribution

More on Tabulated Areas of Normal Distribution

Tabulated Areas of Normal Distribution for Centre Case

Inverse Use of Table of Areas Under Normal Curve

More on Inverse Use of Table of Areas Under Normal Curve

Problem- Inverse Use of Table of Areas Under Normal Curve

Normal Approximation to the Binomial Distribution

Chapter # 12

Sampling and Sampling Distributions (52 Videos)

12.1 Basic Concepts

- Applications of Sampling
- Central Limit Theorem
- Population Vs Sample
- Population and Its Kind
- Sample and Sampling
- Sampling Units and Frame
- Sampling Versus Census
- Sampling and Non-Sampling Errors
- Precision and accuracy
- Limitations of Sampling
- Sampling Design and Its Types
- A Representative Vs Biased Sample

12.2 Probability And Non-Probability sampling

- Probability and Non-probability Sampling
- Random Digits
- Simple Random Sampling
- Systematic Sampling
- Stratified Sampling
- Cluster Sampling
- Introducing Purposive and Quota Sampling

12.3 Errors in Sampling

- True Value, Accuracy, Precision and Error
- Prob-True Value, Accuracy, Precision and Error
- Prob-Simple Random Sampling and Sampling Distribution

12.4 Sampling and Sampling Distributions

- Sampling
- Sampling Distribution
- Sampling With Replacement and Without Replacement
- Sampling Distribution and Standard Error of Statistic
- Prob-Sampling Distribution and Standard Error of Statistic
- Prob-Sampling Distribution From General Populations

12.5 Sampling Distributions

- Sampling Distribution of Mean
- More on Sampling Distribution of Mean
- Graphical Representation of Sampling Distribution of Means
- Standard Deviation of the Sampling Distribution With Replacement
- More on Standard Deviation of the Sampling Distribution With Replacem
- More on Standard Deviation of the Sampling Distribution With Replacem

Problem- Standard Deviation of Sampling Distribution With Replacement
Standard Deviation of Sampling Distribution Without Replacement
More on Standard Deviation of Sampling Distribution Without Replaceme
Sampling Distribution of Difference of Means
Variance of Difference of Random Variables
More on Sampling Distribution of Difference of Means
More on Difference of Variance of Random Variables
Problem-Sampling Distribution of Difference of Means
More on Problem-Sampling Distribution of Difference of Means
Further to Problem-Sampling Distribution of Difference of Means
Further to Problem-Sampling Distribution of Difference of Means
Sampling Distribution of Proportions
Problem- Sampling Distribution of Proportions
More on Problem- Sampling Distribution of Proportions
More on Problem- Sampling Distribution of Proportions
Sampling Distribution of Difference between Proportions
Sampling Distribution of Variances
More on Sampling Distribution of Variances
Further stuff on Sampling Distribution of Variances

Chapter # 13

Statistical Inference: Estimation (17 Videos)

13.1 Statistical Inference

Introducing Statistical Inference
Estimates and Estimators
Statistic and Estimator

13.2 Point Estimation

Introducing Point Estimation

13.3 Unbiased Estimator

Introducing Unbiased Estimator
Unbiased Estimation of the Variance

13.4 Confidence Interval

Introducing Confidence Interval
Confidence Interval for Means with Large Samples
Confidence Interval for μ when σ^2 is Unknown
Confidence Interval for Differences between Means with Large Sample s
Confidence Interval for Mean with Small Sample
Problem-Confidence Interval Estimates of Mean From Small Samples
Confidence Interval for differences between Means for small samples w
Confidence Interval for Paired Observations

Confidence Interval for Proportions
Confidence Intervals for Difference Between Proportions
Confidence Interval for Paired Observations

Chapter # 14

Statistical Inference: Hypothesis Testing (27

Videos)

14.1 Basic Concepts

Testing hypothesis
Formulation of Null and Alternative Hypothesis
Prob-Formulation of Null and Alternative Hypothesis
Simple and Composite Hypothesis
Test-Statistics
Acceptance and Rejection Regions
Type 1 and 2 Errors
The Significance Level
One Tailed and Two Tailed Test
General Procedure for Testing Hypothesis
Left Tailed and Right Tailed Tests
Prob-Left Tailed and Right Tailed Tests
Deciding Upon an Appropriate Test
Level of Significance and Level of Confidence

14.2 Testing Hypothesis about Population Mean

Testing Hypothesis about Mean of a Normal population when Sigma is kn
Testing Hypothesis about Mean of a Normal population when Sigma is Un
The Students t Distribution
Hypothesis Testing About the Mean with Unknown Variance
Comparing the Mean of Two Normal Populations
Comparing the Means of Two Normal Distributions with unequal Unknown
The Paired t Test

14.3 Testing Hypothesis about Population Pro

Test Based on Normal Approximation
Example- Test Based on Normal Approximation
Test of Hypothesis About the Difference Between Two Population Propor
Prob-Test of Hypothesis About the Difference Between Two Population P
Testing That Difference Between Two Population Proportions Equals Som
Prob-Testing That Difference Between Two Population Proportions Equal

Chapter # 15

Association of Attributes (09 Videos)

15.1 The Association of Attributes

Variables and Attributes

Classification by Attributes

Independence and Criterion of Independence

Association of Attributes

Coefficient of Association

Categorical data

Contingency Tables

Testing Hypothesis of Independence between Attributes

Yates Correction for Continuity

Class-12 (Accounting)

(Total Videos # 167)

Chapter # 01

Accounts From Incomplete Records (19 Videos)

1.1 Introduction to Single Entry System

Single Entry System

Profit/ (Loss) Determination under Single Entry System

1.2 Statement of Affairs Method

Numerical 1: Statement of Affairs Method

Numerical 2: Statement of Affairs Method

Numerical 3: Statement of Affairs Method

More on Numerical 3: Statement of Affairs Method

1.3 Conversion Method

Conversion Method

Steps Involve in Conversion Method

Total Debtors Account and Total Creditors Account

Total Creditors Account

Numerical 1: Conversion Method

More on Numerical 1: Conversion Method

More on Numerical 1: Conversion Method

Margin and Mark-up

Calculation of Missing Data using Mark-up Rate

Calculation of Missing Data using Margin and Inventory Turnover

Inventory lost in Fire or by Theft

More on Inventory lost in Fire or by Theft

More on Inventory lost in Fire or by Theft

Chapter # 02

Accounts of Non-Profit Making Organizati (16

Videos)

2.1 Introduction of Non-Profit Making Organ

Non-Profit Organizations

Accounts of Non-Profit Organizations

Some Particular Terms of Non Profit Organisations

More on Some Particular Terms of Non Profit Organisations

2.2 Accounts of Non-Profit making Organizat

Receipt and Payment Account

Example 1: Income and Expenditure Account

Adjustment for Subscription

Example: Ascertain the amount of Subscription

Adjustment for Admission fee/ Entrance fee

Example: Admission Fee

Difference between Cash Book & Receipt and Payment Account

Problem: Receipt and Payment Account

More on Problem: Receipt and Payment Account

Problem: Income & Expenditure Account

Problem: Income & Expenditure Account

Problem: Statement of Financial Position (Balance Sheet)

Chapter # 03

Consignment Accounts (17 Videos)

3.1 Introduction of Consignment Accounts

Consignment Accounts

Important Terms used in Consignment Accounts

More on Important Terms used in Consignment Accounts

3.2 Accounting Treatments

Journal Entries in the Books of Consignor

More on Journal Entries in the Books of Consignor

Ledger Accounts in the Books of Consignor

Journal Entries in the Books of Consignee

Ledger Accounts in the Books of Consignee

3.3 Adjustments

Valuation of unsold Consignment Stock
Example: Valuation of unsold Consignment Stock
Loss of Stock or Goods
Abnormal Loss in Consignment
Invoicing Goods Higher than Cost

3.4 Problems

Problem 1: Consignment Account (Normal Loss)
More on Problem 1: Consignment Account (Normal Loss)
Problem 2: Consignment Account (Abnormal Loss)
More on Problem 2: Consignment Account (Normal Loss)

Chapter # 04

Joint Stock Company (36 Videos)

4.1 Introduction to Company Accounts

Company and its kinds on the basis of Article of Association
Kinds of Companies on the basis of Legal Form
Kinds of Companies on the basis of Composition
Characteristics of Joint Stock Company
More on Characteristics of Joint Stock Company

4.3 Important Legal Documents

Memorandum, Articles of Association and Prospectus

4.3 Classes of Share Capital

Share Capital of a Company
Categories of Share Capital
More on Categories of Share Capital

4.4 Issuance of Shares

Issuance of Shares
Accounting for Issuance of Shares
Accounting for Issue of Shares in case of Over-Subscription
Accounting for Issue of Shares in case of Under-Subscription
Subsequent Issue of Shares
Issue of Shares at Premium
Problem: Issue of Shares at Premium
More on Problem: Issue of Shares at Premium
Problem: Issue of Shares at Discount
More on Problem: Issue of Shares at Discount
Consideration for Issue of Shares
Consideration for Issue of Shares - Running Business

4.5 Introduction of Debentures, Bonds and T

Accounting for Debenture
Kinds of Debentures

4.6 Issuance of Debentures

Difference between Debenture holder and Shareholder
Preference of Debenture Issue over Share Issue
Problem 1: Debentures issued for Cash
More on Problem 1: Debentures issued for Cash
Problem 2: Debentures issued in Consideration other than Cash
More on Problem 2: Debentures issued in Consideration other than Cash
Issue of Debentures as Collateral Security

4.7 Issuance and Redemption of Debentures

Redemption of Debentures
Different Cases of Issuance and Redemption of Debentures
Issuance of Debentures at Premium, Redeemable at Par
Issuance of Debentures at Par, Redeemable at Premium
Issuance of Debentures at Discount and Redeemable at Premium
More on Issuance of Debentures at Discount and Redeemable at Premium

Chapter # 05

Depreciation, Provisions and Reserves (21 Videos)

5.1 Acquisition of a Running business

Depreciation
More on Depreciation

5.2 Methods of Calculating Depreciation

Methods of Depreciation
Problem 1: Machinery Account using Fixed Installment Method of Depreciation
Problem 2: Fixed Installment Method of Depreciation (Advance Level)
More on Problem 2: Fixed Installment Method of Depreciation (Advance Level)
More on Problem 2: Fixed Installment Method of Depreciation (Advance Level)
Reducing or Diminishing Balance Method of Depreciation
Sum of Year's Digits Method
Problem 3: Sum of Year's Digits Method
Annuity Method of Depreciation
Sinking Fund Method of Depreciation
Revaluation and Depletion Method of Depreciation
Machine hour Rate and Mileage method of Depreciation

5.3 Effects of Depreciation

Causes of Depreciation
External Causes of Depreciation

- Accounting Entries for Depreciation
- 5.4 Reserve and Provision**
 - Reserve
 - Provision
 - Distinction between Provision and Reserve
 - Distinction between Provision and Reserve-II

Chapter # 06

Sole Proprietorship and Partnership (22 Videos)

- 6.1 Proprietorship**
 - Proprietorship and its Accounting Treatment
 - Comparison between Proprietorship and Partnership
- 6.2 Partnership**
 - Partnership and its kinds.
- 6.3 Distribution of Profit and Loss**
 - Partnership Agreement
 - Clauses under Partnership Agreement
 - More on Clauses under Partnership Agreement
 - Partnership Rules in the Absence of an Agreement
 - Entries for Distribution of Profit
 - Profit and Loss Appropriation Account
 - Interest on Capital and Drawings
 - More on Interest on Capital and Drawings
 - Fixed and Fluctuating Capital
 - More on Fixed and Fluctuating Capital
 - Change in Profit sharing ratio
 - Average Profit Method of Goodwill
 - Super Profit Method of Goodwill
 - Capitalization Method of Goodwill
- 6.4 Problems**
 - Partnership Accounts - Numerical 1
 - Partnership Accounts - More on Numerical 1
 - Numerical 2: Profit/Loss Distribution under Partnership
 - More on Numerical 2: Profit/Loss Distribution under Partnership
 - More on Numerical 2: Profit/Loss Distribution under Partnership

Chapter # 07

Partnership Accounts-Admission of a Part (15 Videos)

7.1 Admission of a Partner

Admission of a New Partner
Calculation of Sacrifice Ratio
Example: Calculation of Gain or Sacrifice Ratio of old Partners
Revaluation of Assets & Liabilities
Goodwill on Admission: When Goodwill Account does not Exist
Premium Method for the Treatment of Goodwill
Revaluation and Memorandum Revaluation Method
Goodwill on Admission: Where Goodwill Account already Exists
Adjustment regarding Capital
Treatment of Reserves on Admission of a New Partner

7.2 Problems

Numerical 3: Journal Entries for Revaluation of Assets
Numerical 4: Partnership-Admission of a Partner
More on Numerical 4: Partnership-Admission of a Partner
Numerical 5: Partnership-Revaluation Account on admission of a New Pa
Numerical 6: Partnership-Balance Sheet on admission of a New Partner

Chapter # 08

Partnership Accounts Retirement and Deat (07 Videos)

8.1 Retirement of Partners

Retirement of a Partner
Treatment of Goodwill on Retirement
Payment to the Retiring Partner

8.2 Death of Partners

Example: Deceased's Share of Goodwill and Gaining Ratio
Joint Life Policy

8.3 Problems

Numerical: Partnership-Journal Entries on death of a Partner
More on Numerical: Partnership-Journal Entries on death of a Partner

Chapter # 09

Partnership Accounts Dissolution of the (14 Videos)

9.1 Dissolution of Partnership

Dissolution of Partnership and Partnership Firm
Accounting Treatment: Dissolution of Partnership Firm
Modes of Dissolution of a Firm
Dissolution of Partnership Firm by Court of Law
Settlement of Accounts on Dissolution
Realisation Account
More on Realisation Account
Treatment of Realisation Expenses
Garner vs Murray Rule
Dissolution of the Firm-When all partners are Insolvent
Closing of Books in case Partners are Insolvent

9.2 Problems

Numerical: Dissolution of the Firm
Numerical: Accounts to close the Books (Realisation & Cash Account)
Numerical: Accounts to close the Books (Capital Account)