

MCAT Prep (Physics)

(Total Videos # 282)

Chapter # 01

Physical Quantities and Units (15 Videos)

1.1 What is Physics

1. Introduction to Physics

1.2 Physical Quantities and Units

2. Physical Quantities
3. Problem on Physical Quantities
4. Supplementary units
5. Conventions for Indicating units
6. International Systems of Base Units

1.3 Units of Base Quantities

7. Standard of Length-Metre
8. Standard of Time-Second
9. Standard of Mass-Kilogram
10. International Systems of Base Units

1.4 Dimensional Analysis of Physical quanti

11. Dimensions of Physical Quantities
12. More on Dimensions of Physical Quantities
13. Problem on Dimensions of Physical Quantities
14. Deriving a possible Formula
15. Problem on Deriving a possible Formula

Chapter # 02

Forces (11 Videos)

2.1 Concept of Weight

1. Difference Between Mass and Weight

2.2 Weight and Center of Gravity

2. Center of Gravity
3. Center of Gravity of Irregular Shape
4. Location of Axis

2.3 Weightlessness in an Elevator

5. Real and Apparent weight
6. weightlessness in Satellites and Gravity Free system

2.4 The Moment of Force

7. Introduction to Torque or Moment of a Force
8. More on Torque
9. Problem on More on Torque
10. Principle of Moment
11. Problem on Principle of Moments

Chapter # 03

Fluid Dynamics (13 Videos)

3.1 Viscosity

1. Fluid Friction (Viscosity)
2. Viscous Drag and Stokes Law
3. Problem on Viscous Drag and Stokes Law

3.2 Steady Flow, Incompressible Flow, Non-v

4. Fluid Flow
5. Turbulent Flow

3.3 The Equation of Continuity

6. Equation of Continuity
7. problem on Equation of Continuity

3.4 Bernoulli's Equation

8. Bernoulli's Equation
9. More on Bernoulli's Equation

3.5 Pressure variation during fluid flow

10. Relation Between Speed and Pressure of the Fluid
11. More on Relation Between Speed and Pressure of the Fluid
12. Blood Flow
13. Applications of Bernoulli's Equation

Chapter # 04

Light (47 Videos)

4.1 Interference of Light

1. Interference of Light Waves
2. Young's Double slit Experiment
3. More on Young's Double slit Experiment
4. More on Young's Double slit Experiment
5. More on Young's Double slit Experiment
6. problem on Young's Double slit Experiment
7. Interference in Thin Films
8. Newton's Rings
9. Michelson's Interferometer
10. Michelson's Interferometer

4.2 Diffraction of Light

11. Diffraction of Light
12. Diffraction due to a Narrow slit
13. Fresnel Diffraction
14. Fraunhofer Diffraction
15. Diffraction Grating
16. More on Diffraction Grating
17. Problem on Diffraction Grating
18. More on Problem on Diffraction Grating

4.3 Diffraction of X-Rays by Crystals

19. Diffraction of X-Rays by Crystals
20. More on Diffraction of X-Rays by Crystals
21. Problem on Diffraction of X-Rays by Crystals

4.4 Polarization of Light

22. Polarization
23. Production and Detection of Plane Polarized Light
24. Polarization by Reflection
25. Applications of Polarized Light
26. More on Applications of Polarized Light
27. Optical Rotation

4.5 Least Distance of Distinct Vision

28. Least Distance of Distinct Vision

4.6 "Shortsightedness, Long Sightedness"

29. Short-sightedness and its Correction
30. Long-sightedness and its Correction

4.7 Magnifying Power and Resolving Power

31. Magnifying power and Resolving power of Optical Instruments
32. More on Magnifying power and Resolving power of Optical Instruments
33. Resolving Power and Resolving Limit

4.8 Simple Microscope and Compound Microscope

34. Simple Microscope
35. Problem on Simple Microscope

36. Compound Microscope
37. More on Compound Microscope
38. Problem on Compound Microscope
39. More on Problem on Compound Microscope

4.9 Optical Fibres & Types and Applications

40. Introduction to Fibre Optics
41. Types of Optical Fibres
42. Single Mode Step Index Fibre
43. Multimode Step Index Fibre
44. Multimode Graded Index Fibre
45. Problem on Optical Fibres
46. Signal Transmission and Conversion to sound
47. Losses of power

Chapter # 05

Waves (42 Videos)

5.1 Simple Harmonic Motion with examples

1. Simple Harmonic Motion
2. More on Simple Harmonic Motion
3. Simple Pendulum
4. Ball and Bowl as SHM
5. Problem-Ball and Bowl as SHM

5.2 Energy in simple harmonic motion

6. Energies Interconversion in spring-mass system
7. Problem-Energies Interconversion in Spring-Mass System
8. Energy conservation in SHM
9. More on Energy conservation in SHM
10. Problem on Energy conservation in SHM

5.3 Free and Forced Oscillations

11. Free and Forced Oscillations

5.4 Doppler's effect & causes and applicati

12. Doppler Effect
13. Doppler Effect: When Source at Rest, Observer is Moving
14. Doppler Effect: When Observer at Rest, Source is Moving
15. Doppler Effect: When both Source and Observer are Moving
16. Problem on Doppler Effect
17. Applications of Doppler Effect
18. More on Applications of Doppler Effect
19. More on Applications of Doppler Effect

5.5 Ultrasound with uses in scanning

- 20. Ultrasonic Waves
- 21. Uses of Ultrasonic Waves
- 22. Ultrasounds and its Applications
- 23. Problem 1-Ultrasound and Its Applications
- 24. Problem 2-Ultrasound and its Applications

5.6 **Speed of sound in different media**

- 25. The Medium of Transmission
- 26. Uses of Ultrasonic Waves
- 27. Measuring Speed of Sound
- 28. Ultrasounds and its Applications
- 29. More on Measuring Speed of Sound
- 30. Problem 1-Ultrasound and Its Applications
- 31. Problem 1-Measuring The Speed of Sound
- 32. Problem 2-Ultrasound and its Applications
- 33. Problem 2-Measuring The Speed of Sound
- 34. Effects of Various Factors on Speed of Sound in Air
- 35. More on Effects of Various Factors on Speed of Sound in Air
- 36. More on Effects of Various Factors on Speed of Sound in Air
- 37. Problem on Effects of Various Factors on Speed of Sound in Air

5.7 **Audioable frequency range**

- 38. Audibility
- 39. Problem 1-Audibility
- 40. Audible Frequency Range
- 41. Problem 1-Audible Frequency Range
- 42. Problem 2-Audible Frequency Range

Chapter # 06

Deformation of Solids (16 Videos)

6.1 **Deformation one dimension**

- 1. More on Energy Stored in a Stretched Force
- 2. Deformation in Solids
- 3. Energy Stored in a Stretched Force

6.2 **Tensile or compressive deformation**

- 4. Tensile and Compressive Stress and Strain
- 5. Problem-Tensile and Compressive Stress and Strain

6.3 **Stress, Strain, Young's modulus and Bul**

- 6. Stress and Strain
- 7. More on Stress and Strain
- 8. Problem-Stress and Strain
- 9. Youngs Modulus

10. Problem on Young's Modulus
11. Problem 2 on Young's Modulus
12. Bulk Stress and Strain; Bulk Modulus
13. Problem-Bulk Stress and Strain; Bulk Modulus
14. Shear Stress and Strain; Shear Modulus

6.4 **Energy stored in deformed material**

15. Strain Energy in Deformed Materials
16. More on Strain Energy in Deformed Materials

Chapter # 07

Ideal Gases (09 Videos)

7.1 **Ideal gas equation**

1. General Gas Equation
2. Problem on General Gas Equation

7.2 **Postulates of Kinetic Theory of gases**

3. Kinetic Theory of Gases

7.3 **Derivation of Gas laws on the basis of**

4. Derivation of Gas Laws
5. Problem on Derivation of Gas Laws

7.4 **Pressure of a Gas(kinetic interpretation)**

6. Interpretation of Pressure on Kinetic Theory of Gases
7. More on Interpretation of Pressure on Kinetic Theory of Gases-part1
8. More on Interpretation of Pressure on Kinetic Theory of Gases-part2
9. Problem on Interpretation of Pressure

Chapter # 08

Heat and thermodynamics (17 Videos)

8.1 **Thermal Equilibrium**

1. Thermal Equilibrium

8.2 **Temperature and temperature scales**

2. Scales of Temperature
3. Thermodynamic Scale of Temperature

4. Conversion of Temperature Among Different Scale
 5. Problem 1 on Conversion of Temperature Among Different Scale
 6. Problem 2 on Conversion of Temperature Among Different Scale
- 8.3 Thermocouple, thermometer and mercury t**
7. Introduction to Thermometer
 8. Thermometric Properties
 9. Thermocouple Thermometers (Optional)
 10. Clinical Thermometer
 11. Why Mercury is Used in Glass Thermometer.
 12. Bimetallic Thermometer
- 8.4 Laws of thermodynamics**
13. First Law of Thermodynamics
 14. Problem on First Law of Thermodynamics
 15. Second Law of Thermodynamics
 16. More on Second Law of Thermodynamics
- 8.5 Internal Energy**
17. Internal Energy

Chapter # 09

Electronics (14 Videos)

- 9.1 Logic Gates**
1. Fundamental Logic Gates
 2. AND Gate
 3. OR Gate
 4. NOT Gate
 5. NOR Gate
 6. NAND Gate
- 9.2 Cathode Ray Oscilloscope**
7. Motion of Charged Particle in an Electric and Magnetic Field
 8. Problem-Motion of Charged Particle in an Electric and Magnetic Field
 9. Cross Electric and Magnetic Fields; Velocity Selector
 10. Thermionic Emission
 11. Properties of Electrons
 12. Cathode Ray Oscilloscope
 13. Uses of CRO
 14. Problem- Using the C.R.O

Chapter # 10

Current Electricity (39 Videos)

10.1 Ohm's law

1. Ohm's law
2. More on Ohm's law
3. Problem-Ohm's Law
4. Characteristics of Ohmic and Non Ohmic Conductors
5. Problem-Characteristics of Ohmic and Non Ohmic Conductors

10.2 Combinations of Resistors

6. Electrical Resistance
7. Colour Code for Carbon Resistances
8. Problem1-Color Code for Carbon Resistances
9. Problem2-Color Code for Carbon Resistances
10. Series combination of Resistors
11. Problem 1-Series Combination of Resistors
12. Problem 2-Series Combination of Resistors
13. Parallel Combination to Resistors
14. More on Parallel Combination to Resistors
15. Problem 2-Parallel combination to Resistors
16. Problem 3-Parallel combination to Resistors
17. Review of Series and Parallel Combination of Resistors
18. More on Review of Series and Parallel Combination of Resistors
19. Problem1-Review of Series and Parallel Combination of Resistors
20. Problem2-Review of Series and Parallel Combination of Resistors

10.3 Understanding Capacitor

21. Capacitor
22. Problem-Capacitor
23. Capacitance of a Parallel Plate Capacitor
24. Problem-Capacitance of a Parallel Plate Capacitor
25. Electric Polarization of Dielectrics
26. Energy Stored in a Capacitor
27. More on Energy Stored in a Capacitor
28. Problem1-Energy Stored in a Capacitor
29. Problem2-Energy Stored in a Capacitor
30. Charging and Discharging a Capacitor
31. More on Charging and Discharging a Capacitor-part1
32. More on Charging and Discharging a Capacitor-part2
33. More on Charging and Discharging a Capacitor-part3
34. Problem-Charging and Discharging a Capacitor

10.4 Combinations of Capacitors

35. Capacitors in Parallel Combination

- 36. Problem 1-Capacitors in Parallel Combination
- 37. Capacitors in Series Combination
- 38. Problem 1-Capacitors in Series Combination
- 39. Problem-Series Combination of Capacitors

Chapter # 11

Magnetism and Electromagnetism (06 Videos)

11.1 Magnetic field due to current in i) Str

- 1. Magnetic Field Due to Current in a Long Straight Wire
- 2. Problem-Magnetic Field Due to Current in a Long Straight Wire
- 3. Field Due to a Current Carrying Solenoid
- 4. More on Field Due to a Current Carrying Solenoid
- 5. Problem-Field Due to a Current Carrying Solenoid

11.2 Magnetic Resonance Imaging (MRI)

- 6. Magnetic resonance imaging(MRI)

Chapter # 12

Modern Physics (17 Videos)

12.1 Principle of production of X-rays

- 1. Inner Shell Transitions and Characteristic X-Rays
- 2. Production of X-Rays
- 3. More on Production of X-Rays
- 4. The Continuous X-Ray Spectrum
- 5. Properties of X-Rays
- 6. More on Properties of X-Rays
- 7. Problem-Production of X-Rays

12.2 Use of X-rays in imaging

- 8. Uses of X-Ray
- 9. Biological Effects of X-Rays

12.3 Computed tomography or CT scanning

- 10. CAT - Scanner

12.4 Laser principle and its type

- 11. Laser
- 12. More on Laser

13. Spontaneous and Stimulated Emission
14. Population Inversion and Laser Action
15. More on Population Inversion and Laser Action
16. Helium - Neon Laser

12.5 Application of laser in medicine and i

17. Uses of Laser in Medicine and Industry

Chapter # 13

Nuclear Physics (36 Videos)

13.1 Radioactivity

1. Radioactivity
2. Natural Radioactivity
3. Alpha Emission
4. Beta Emission
5. Gamma Emission
6. Spontaneous Disintegration

13.2 Radioactive decay

7. Radioactive Decay
8. Laws of Radioactive decay
9. More on Laws of Radioactive decay
10. More on Laws of Radioactive decay
11. Radioactive decay law-problem
12. Nuclear Transmutations
13. Half Life and its Measurements
14. Half Life
15. 1-More on Half Life
16. 2-More on Half Life
17. Problem 1-Half Life and its Measurements
18. Problem 2-Half Life and its Measurements
19. Problem 3-Half Life and its Measurements
20. Half life-problem
21. Half life-problem
22. Nature and Properties of Radiations

13.3 Radio Isotopes and their biological uses

23. Radio Isotopes
24. Uses of Isotopes
25. Biological and Medical uses of Radiation
26. More on Biological and medical uses of radiation
27. Treatment of Cancer

13.4 Nuclear radiation detectors

- 28. Radiation Detectors
- 29. Geiger-Muller Counter
- 30. 1-More on Geiger-Muller Counter
- 31. 2-More on Geiger-Muller Counter
- 32. Wilson Cloud Chamber
- 33. More on Wilson Cloud Chamber

13.5 Radiation hazards and biological effect

- 34. Biological effects of radiation
- 35. More on Biological effects of radiation
- 36. Biological effects of radiation-problem

MCAT Prep (Chemistry)

(Total Videos # 378)

Chapter # 01

Fundamental Concepts (Physical Chemistry (34 Videos)

1.1 Relative atomic mass, Molecular and For

- 1. Relative Atomic Mass and Atomic Mass Unit

2. Average Atomic Masses
3. Relative Molecular Mass (Mr)
4. Formula mass
- 1.2 Mole and Avogadro's constant**
 5. Avogadro's Number
 6. More on Avogadro's Number
 7. Mole
 8. More on Concept of Mole
 9. Mole-Mass Calculations
 10. Calculating the Average Atomic Mass
 11. Molar Gas Volume
 12. Calculations of Molar Gas Volume
- 1.3 Mass spectrometric technique**
 13. Determination of Ar of Isotopes by Mass Spectrometry
 14. More on Determination of Ar of Isotopes
- 1.4 Empirical and Molecular formulae**
 15. Empirical formula
 16. Empirical formula-covalent and ionic compound
 17. The Empirical Formula from the Percentage Composition
 18. Empirical Formula from Combustion Analysis
 19. Empirical Formula from Combustion Analysis (continued)
 20. Molecular formula
 21. More on Molecular Formula
 22. Calculating Percentage Composition
 23. Calculating Empirical Formula from Combustion Analysis
 24. Determining Empirical Formula of a Compound
- 1.5 Stoichiometric calculations**
 25. Stoichiometry
 26. Stoichiometric Calculations
 27. Mole-Mass Calculations
 28. Calculating Moles from Mass
 29. Calculating Mass from Moles
 30. Calculating Mass in Grams and Moles
 31. Mole-Particle Calculations
 32. More on Mole-Particle Calculations
 33. Calculations Based on Balanced Chemical Equations
 34. Calculating Limiting and Excess Reactants

Chapter # 02

States of Matter (Physical Chemistry) (42 Videos)

2.1 Postulates of Kinetic Molecular Theory

1. Kinetic Molecular Theory of Gases
2. More on Kinetic Molecular Theory of Gases

2.2 Deviation of real gases from ideal beha

3. Non-Ideal Behaviour of Gases

2.3 Gas laws

4. Boyle's Law of Gases
5. Experimental Verification of Boyle's Law
6. Graphical Explanation of Boyle's Law
7. Charles's Law
8. Experimental Verification of Charles's Law
9. Experimental Verification of Charles's Law
10. Graphical Explanation of Charles' Law
11. Avogadro's Law
12. Dalton's Law of Partial Pressures
13. General Gas Equation
14. Ideal Gas Constant R
15. Density of an Ideal Gas

2.4 Causes of deviation from ideal behaviour

16. Causes for Deviations from Ideality

2.5 Conditions to approach ideal behaviour

17. Van der Waals Equation for Real Gases; Volume Correction
18. Pressure Correction
19. Proving Correction of Volume and Pressure
20. Van der Waal's Constants

2.6 Liquid state

21. Postulates of Kinetic Molecular theory of Liquids
22. Evaporation
23. Dissolving, Filtering and Evaporating
24. Vapour Pressure
25. Boiling Points of Liquids
26. Effect of Vapour Pressure on Boiling Point
27. Effect of Temperature on Vapour Pressure
28. Manometric Method of Measuring Vapour Pressure
29. Boiling Point and External Pressure
30. Hydrogen Bonding
31. Hydrogen Bonding in Paints, Dyes and Textile Materials

2.7 The lattice structure of a crystalline solid

32. Crystalline Solids
33. Crystal Lattice
34. Unit Cell

2.8 Giant ionic structure, as in sodium chloride

35. Structure of Sodium Chloride

2.9 Simple molecular, as in iodine

36. Molecular Solids

37. Structure of Solid Iodine

2.10 Giant molecular, as in graphite; diamond; silicon(IV)

oxide

38. Diamond

39. Structure of Diamond

40. Structure of Graphite

2.11 Metallic as in Cu and Fe.

41. Metallic Solids

42. Structure of Metals

Chapter # 03

Atomic Structure (Physical Chemistry) (27 Videos)

3.1 Proton, neutron and electron

1. Properties of Cathode rays

2. Properties of Cathode rays

3. Discovery of Proton

4. Properties of positive rays

5. Discovery of Neutron

6. Properties of Neutron

7. More on Properties of Neutron

8. Properties of Fundamental Particles

3.2 The behaviour of protons neutrons and

9. Properties of Fundamental Particles

3.3 Isotopes

10. Isotopes

11. More on Isotopes

3.4 Number and relative energies of the s,

12. Arrangement of Electrons in an Atom

13. Electronic configuration

14. More on Electronic configuration

15. (n+l) Rule

16. The Relative Energies of Atomic Orbitals

3.5 The shapes of s and p orbitals

17. Shape of s-Orbitals

18. Shapes of p-Orbitals

- 19. Shapes of d-Orbitals
- 3.6 The electronic configuration of atoms and ions**
 - 20. Electronic configuration
 - 21. More on Electronic configuration
- 3.7 Ionization energy**
 - 22. Ionization Energy
- 3.8 The factors influencing the ionization energies**
 - 23. Factors Influencing the Ionization Energies
 - 24. Higher Ionization Energies
- 3.9 The trends in ionization energies**
 - 25. Ionization Energy Variation within a Group
 - 26. Ionization Energy Variation Across a Period
 - 27. Trend of Ionization Energy in Periodic Table

Chapter # 04

Chemical Bonding (Physical Chemistry) (27 Videos)

- 4.1 Electrovalent (ionic) bond**
 - 1. Kinetic Interpretation of Crystalline Solids
 - 2. Structure of Sodium Chloride
- 4.2 'dot-and-cross' diagrams**
 - 3. Bonding and Structure of Water
 - 4. Dative Covalent Bond or Co-ordinate Covalent Bond
- 4.3 Valence Shell Electron-pair repulsion t**
 - 5. Valence Shell Electron Pair Repulsion Theory
 - 6. Molecules Containing Two Electron Pairs (AB₂ Type) and AB₃ Type
 - 7. AB₄ Type With No Lone Pairs AB₃E₁ Type and AB₂E₂
- 4.4 Covalent bonding in terms of orbital ov**
 - 8. Molecular Orbital Theory
 - 9. Head on approach and sideways Approach
 - 10. Strength of Sigma and Pi Bonds
- 4.5 Hydrogen Bonding**
 - 11. Hydrogen Bonding
- 4.6 Bond energy, bond length and bond polarity**
 - 12. Energetics of Bond Formation
 - 13. Bond Energy
 - 14. Bond Length
 - 15. More on Bond Length

- 16. Dipole Moment
- 17. Dipole Moments and Molecular Structure; Percentage Ionic Character
- 18. Relative Energies of the Molecular Orbitals
- 19. Effect of Bonding on Reaction Kinetics
- 4.7 Intermolecular forces (Van der Waal's forces)**
 - 20. Intermolecular Forces
 - 21. Dipole-Dipole Interactions
 - 22. Dipole-Induced Dipole Forces
 - 23. London Dispersion Forces
 - 24. Factors Affecting the London Forces
- 4.8 Metallic bonding**
 - 25. Metallic Solids
 - 26. Structure of Metals
- 4.9 The effect of different types of bonding on the physical properties of substance**
 - 27. Effect of Bonding on Properties of Compounds

Chapter # 05

Chemical Energetics (Physical Chemistry) (17 Videos)

- 5.1 Energy changes during chemical reactions**
 - 1. Introduction to Thermochemistry
 - 2. Some Examples of Endothermic and Exothermic Reactions
 - 3. Enthalpy
 - 4. Enthalpy Change of Different Reactions
 - 5. Enthalpy of Formation
 - 6. Enthalpy of Neutralization
 - 7. Enthalpy of Combustion
 - 8. Enthalpy of Atomization
 - 9. Bond Energy
 - 10. Making and Breaking Bonds
 - 11. More on Making and Breaking Bonds
- 5.2 Heat of reactions**
 - 12. Heat Capacity
- 5.3 Effect of ionic charge and of ionic radius**
 - 13. Ionic Character and Bond Energy
 - 14. More on Ionic Character and Bond Energy

5.4 Hess's Law

15. Hess's Law of Constant Heat Summation
16. Verification of Hess's Law
17. Verification of Hess's Law

Chapter # 06

Solutions (Physical Chemistry) (23 Videos)

6.1 Calculating Concentration

1. Percentage Mass/Mass
2. Percentage Mass/Volume
3. Percentage Volume/Mass
4. Percentage Volume/Volume
5. Moles and Solution
6. Calculations Related to Concentration of Solutions
7. Molarity and Preparation of Molar Solution
8. Molality
9. Mole Fraction (x)
10. Parts Per Million, Parts Per Billion, Parts Per Trillion
11. Interconversion of Various Concentration Units of Solutions
12. More on Interconversion of Various Concentration Units of Solutions

6.2 Colligative properties

13. Colligative Properties
14. More on Colligative Properties
15. Lowering of Vapour Pressure
16. Elevation of Boiling Point
17. More on Elevation of Boiling Point
18. Measurement of Boiling Point Elevation
19. Depression of Freezing Point of a Solvent by a Solute
20. Measurement of Freezing Point Depression
21. Applications of Boiling Point Elevation and Freezing Point Depression
22. Osmosis and Osmotic Pressure
23. Reverse Osmosis

Chapter # 07

Electrochemistry (Physical Chemistry) (18 Videos)

7.1 Industrial processes of the electrolysi

1. Electrolysis of Sodium Chloride
2. Manufacture of NaOH from Brine

7.2 Redox processes

3. Manufacture of NaOH from Brine
4. Oxidation and Reduction in Terms of Loss and Gain of Electron
5. Oxidation and Reduction in Terms of Loss and Gain of Oxygen
6. Oxidation and Reduction in Terms of Loss and Gain of Hydrogen
7. Oxidation State and Rules for Assigning Oxidation State
8. Oxidizing and Reducing Agents
9. Identifying Substances Which are Oxidized or Reduced
10. Identifying Oxidizing and Reducing Agents from the Reactions
11. Balancing of Redox Equations by Oxidation Number Method
12. More on Balancing of Redox Equations by Oxidation Number Method
13. Finding out the Oxidation Numbers

7.3 Standard electrode potential and Standard

14. Electrode Potential

7.4 Standard hydrogen electrode

15. Standard Hydrogen Electrode

7.5 Measurement of electrode potential

16. Measurement of Electrode Potential

7.6 The feasibility of a reaction

17. Prediction of Feasibility of a Chemical Reaction

7.7 Products of electrolysis

18. Products of Electrolysis

Chapter # 08

Chemical Equilibrium (Physical Chemistry (46

Videos)

8.1 Forward and reverse reactions

1. Chemical reactions and its types
2. Dynamic Chemical Equilibrium
3. Reversible Chemical Reactions
4. Irreversible Chemical Reactions
5. Rate of Chemical Change
6. Instantaneous and Average Rate
7. Specific Rate Constant or Velocity Constant

8.2 Le Chatelier's Principle

8. Le-Chatelier's Principle; Effect of Change in Concentration
9. Effect of Change in Pressure or Volume
10. Quantitative Effect of Volume on Equilibrium Position
11. Effect of Change in Temperature
12. Effect of Catalyst on Equilibrium Constant

8.3 Expressions for equilibrium constants

13. Equilibrium Constant K_c and its Units
14. Importance of K_c
15. More on Units of Equilibrium Constant
16. Relationship Between Equilibrium Constants

8.4 Haber process

17. The Haber's Process
18. The Haber's Process
19. Preparation of Sulphur Trioxide

8.5 Bronsted-Lowry theory of acids and bases

20. Bronstead-Lowry Concept of Acids
21. Bronstead-Lowry Concept of Bases

8.6 Strong and weak acids and bases and the pH values

22. Strong Acids
23. Weak Acids
24. Concentration and Strength
25. Dissociation of Acids
26. Dissociation of Bases
27. Identifying Weak or Strong Acids or Bases

8.7 pH; K_a ; pK_a ; K_w

28. Importance of pH
29. Calculating pH
30. Calculating pOH
31. pH, pOH and pK_w
32. Ionization Constants of Acids
33. Percentage of Ionization of Acids
34. Ionization Constant of Bases
35. pK_a and pK_b
36. Relationship between K_a and K_b

8.8 Buffer solutions

37. Buffer Solutions
38. Buffer Action
39. Buffer Capacity

8.9 pH of buffer solutions

40. Calculation of pH of a Buffer
41. More on Calculation of pH of a Buffer

8.10 Solubility product, K_{sp}

42. Solubility Product

- 43. Determination of Solubility Product from Solubility
- 44. Determination of Solubility from Solubility Product

8.11 Common ion effect

- 45. Common Ion Effect
- 46. Some Examples of Common Ion Effect

Chapter # 09

Reaction Kinetics (Physical Chemistry) (13 Videos)

9.1 Rate of Reaction

- 1. Rate of Chemical Change
- 2. Activation Energy

9.2 Activation energy

- 3. Activation Energy

9.3 Order of Reaction

- 4. Order of Reaction
- 5. The First Order Rate Equation

9.4 Half life period

- 6. Half Life Period

9.5 Rate determining steps

- 7. Rate Determining Step

9.6 Catalysts

- 8. Catalysts
- 9. Types of Catalysis, Homogeneous and Heterogeneous Catalysis

9.7 The effect of concentration changes on the rate of a reaction

- 10. Effect of Concentration on Speed of Reaction
- 11. Effect of Concentration on Speed of Reaction

9.8 Effect of catalyst on rate of reaction

- 12. Catalysts

9.9 Enzyme as biological catalysts (proteins)

- 13. Enzymes

Chapter # 10

Periods (Inorganic Chemistry) (07 Videos)

10.1 Atomic radius

1. Atomic Size and Atomic Radius
2. Trend of Atomic Size and Atomic Radius in Periodic Table

10.2 Ionic radius

3. Ionic Radius

10.3 Boiling point

4. Melting and Boiling points variation in a period

10.4 Electrical conductivity

5. Electrical Conductance

10.5 Ionization energy

6. Trend of Ionization Energy in Periodic Table
7. Trend of Ionization Energy in Periodic Table

Chapter # 11

Groups (Inorganic Chemistry) (09 Videos)

11.1 Reactions of group-II elements with oxy

1. Properties of Alkali and Alkaline Earth Metals Oxides

11.2 Characteristics of oxides of carbon and

2. Oxides of Carbon
3. Group-IV A Elements Oxides

11.3 Properties of halogens and uses of chlo

4. Relative Reactivities of the Halogens as Oxidizing Agents
5. More on Relative Reactivities of the Halogens as Oxidizing Agents
6. Bond Enthalpies in Halogens
7. Bond Enthalpies in Hydrogen Halides
8. Uses of Chlorine
9. Oxidation and Bleaching Action of Chlorine

Chapter # 12

Transition Elements (Inorganic Chemistry) (03 Videos)

12.1 Variable oxidation states

1. Oxidation State of Transition Elements

12.2 Use as a catalyst

2. Catalytic Properties of Transition elements

12.3 Formation of complexes

3. Complex Compounds

Chapter # 13

Elements of Biological Importance (Inorg) (10 Videos)

13.1 Manufacture of Ammonia by Haber process

1. The Haber's Process
2. More on Haber process
3. Reversible Reaction in Ammonia
4. Dynamic Equilibrium in Ammonia

13.2 Preparation of Nitric acid and nitrogen

5. Preparation of Nitric Acid in Laboratory
6. Manufacture of Fertilisers
7. More on Manufacture of Fertilisers

13.3 Sulphur dioxide and acid rain

8. Sulphur Dioxide
9. Properties of Sulphur Dioxide

13.4 Manufacture of Sulphuric acid by contact

10. Preparation of Sulphuric Acid through Contact Process

Chapter # 14

Fundamental Principles (Organic Chemistr (26 Videos)

14.1 Classify the organic compounds

1. Classification of Organic Compound
2. Carbon Chains
3. Types of Acyclic Compounds
4. Types of Cyclic Compounds
5. Types of Carbon Atoms in a Compound

14.2 Types of bond fission

6. Homolytic and Heterolytic Fission

14.3 Isomerism; structural and cis-trans

7. Isomerism
8. Structural Isomerism
9. Position Isomerism
10. Functional group Isomerism
11. Metamerism
12. Tautomerism
13. Cis-trans Isomerism or Geometrical Isomerism

14.4 Condensed structural formula, displayed

14. Molecular Formula of Organic Compound
15. Structural Formula
16. Condensed Formula
17. Electronic or Dot and Cross Formula

14.5 Nomenclature of organic compounds

18. Common and IUPAC names
19. Nomenclature of Alkyl Groups
20. Nomenclature of Alkanes
21. More on Nomenclature of Alkanes
22. Nomenclature of Cycloalkanes
23. Nomenclature of Alkenes
24. Nomenclature of Alkynes
25. Nomenclature of Alcohols
26. Nomenclature of Carboxylic Acids

Chapter # 15

Hydrocarbons (Organic Chemistry) (18 Videos)

15.1 Combustion

1. Combustion of Alkanes

15.2 Free radical substitution

2. Halogenation of Alkanes
3. More on Halogenation of Alkanes

15.3 Preparation of alkenes by elimination r

4. Preparation of Alkene
5. More on Preparation of Alkene

15.4 Reaction of Alkenes

6. Hydrogenation of Alkenes
7. Halogenations of Alkenes
8. Reaction of Ethene with Water
9. Hydrohalogenation of Alkenes
10. Oxidation of Alkenes
11. Combustion and Polymerisation of Ethene

15.5 Structure of benzene

12. X-Ray Studies of benzene Structure
13. The Stability of Benzene

15.6 Electrophilic substitution reactions of benzene

14. Reactivity of Benzene Towards Electrophiles
15. Nitration of Benzene
16. Halogenation of Benzene
17. Friedel-Crafts Reaction, Alkylation
18. Friedel-Crafts Reaction, Acylation

Chapter # 16

Alkyl Halides (Organic Chemistry) (18 Videos)

16.1 Halogenoalkanes

1. Introduction to Alkyl Halides

16.2 Reaction of alkyl halides

2. Nucleophilic Substitution Reactions
3. Nucleophilic Substitution Bimolecular(SN2)
4. Nucleophilic Substitution Unimolecular(SN1)
5. β -Elimination Reactions
6. E1 Mechanism
7. E2 Mechanism

Chapter # 17

Alcohols and Phenols (Organic Chemistry) (08 Videos)

17.1 Primary, secondary and tertiary alcohols

1. Classification of Alcohols

17.2 Preparation of ethanol by fermentation

2. Industrial Preparation of Ethanol

17.3 Reaction of alcohols

3. Reactions of Alcohols in which C-O Bond is Broken
4. Reactions of Alcohols in which O-H Bond is Broken
5. More on Oxidation of Alcohols
6. Dehydration of Alcohols

17.4 Reactions of phenol

7. Halogenation & Hydrogenation of Phenol
8. Nitration of Phenol

Chapter # 18

Aldehydes and Ketones (Organic Chemistry) (09 Videos)

18.1 Structure of aldehyde and ketones

1. Structure of the Carbonyl Group

18.2 Preparation of aldehydes and ketones

2. Preparation of Formaldehyde
3. Preparation of Acetaldehyde
4. General Methods of Preparation of Ketones

18.3 Reactions of aldehydes and ketones

5. Reactivity of Carbonyl Group
6. Addition of Hydrogen Cyanide in Carbonyl Compounds
7. More on Addition of Hydrogen Cyanide in Carbonyl Compounds
8. Detection of Aldehyde and Ketones
9. Fehling's Solution Test

Chapter # 19

Carboxylic Acid (Organic Chemistry) (11 Videos)

19.1 Preparation of ethanoic acid

1. Preparation of Carboxylic Acids from Primary Alcohols & Aldehydes
2. Preparation of Carboxylic Acids from Nitriles
3. Preparation of Carboxylic Acids from Nitriles
4. Preparation of Carboxylic Acids by Hydrolysis of Esters

19.2 Reactions of ethanoic acid

5. Preparation of Carboxylic Acids by Oxidative Cleavage of Alkenes

6. Oxidation of Alkyl Benzene
7. Reactions Involving H Atom of the Carboxyl Group
8. Reactions Involving -OH Group of the Carboxylic Acids
9. More on Reactions Involving -OH Group of the Carboxylic Acids
10. Formation of Acid Anhydride
11. Reactions Involving -COOH Group of the Carboxylic Acids

Chapter # 20

Amino Acids (Organic Chemistry) (02 Videos)

20.1 Structure of α -amino acids

1. Structure of Amino Acids

20.2 Peptide bond formation

2. Peptides and Proteins

Chapter # 21

Macromolecules (Organic Chemistry) (15 Videos)

21.1 Addition polymers

1. Addition Polymerisation
2. Polymerisation of Alkenes
3. Some Addition Polymers
4. More on Addition Polymerisation

21.2 Condensation polymers

5. Condensation Polymerisation
6. More on Condensation Polymerisation
7. Polyvinyl Chloride and Polystyrene
8. Nylon

21.3 Structure of proteins

Oops! Video is missing.

21.4 Chemistry of carbohydrates

Oops! Video is missing.

21.5 Chemistry of lipids

Oops! Video is missing.

21.6 Enzymes

Oops! Video is missing.

21.7 Structure and function of nucleic acid (DNA & RNA)

9. Nucleic Acids

Chapter # 22

Environment Chemistry (Organic Chemistry (06 Videos)

22.1 Acid rain

1. Acid Rain
2. Mechanism of Acid Rain
3. Effect of Acid Rain

22.2 Ozone layer

4. Depletion of Ozone
5. Ozone Depletion due to Oxides of Nitrogen and Sulphur
6. Effect of Ozone Depletion

MCAT Prep (Biology)

(Total Videos # 400)

Chapter # 01

Introduction to Biology (08 Videos)

1.1 Transgenic plants

1. Transgenic Plants
2. Agrobacterium Mediated Transformation
3. Electroporation Method
4. Particle gun Method

- 5. Application of Transgenic Plants
- 1.2 Cloning**
 - 6. Tissue Culturing and Cloning
- 1.3 Pasteurization**
 - 7. Pasteurization , Refrigeration
- 1.4 Vaccinization**
 - 8. Vaccines, The Mode of Action of Vaccines
- 1.5 Drug therapy**

No vidoes available yet. Still under development.

Chapter # 02

Cell Biology (40 Videos)

2.1 Structure of typical animal and plant c

- 1. Difference Between Plant and Animal Cell
- 2. Cell
- 3. Cell
- 4. Animal and Plant Cells Common Features
- 5. Specialized Cells, Animal and Plant Cells
- 6. Ultrastructure of a Plant Cell
- 7. Cell Wall
- 8. More on Cell wall
- 9. Cell Membrane
- 10. More on Cell Membrane (Plasma Membrane)
- 11. Transport of Molecules across the Plasma Membrane
- 12. Cytoplasm, Cytoskeleton

2.2 Structure and function of cell organel

- 13. More on Cytoplasm, Cell Organelles
- 14. Endoplasmic Reticulum (ER), Ribosomes
- 15. More on Endoplasmic Reticulum (ER)
- 16. Golgi Apparatus and Lysosomes
- 17. More on Golgi Apparatus
- 18. Vacuoles
- 19. More on Vacuoles
- 20. Lysosomes
- 21. Peroxisomes and Glyoxysomes
- 22. Mitochondria
- 23. Mitochondria Convert Energy
- 24. Plastids
- 25. More on Plastids

- 26. Chloroplast Convert Energy
- 27. Nucleus
- 28. More on Nucleus
- 29. Chromosomes, Nucleolus
- 30. Centrioles
- 31. Cytoskeleton
- 2.3 Prokaryotic cell and Eukaryotic cell**
 - 32. Difference Between Prokaryotic and Eukaryotic Cells
 - 33. Specialized Cells, Animal and Plant Cells
 - 34. More on Difference between Prokaryotic and Eukaryotic Cells
- 2.4 Structure of cell membrane and transpor**
 - 35. Diffusion and Facilitated Diffusion
 - 36. Passive Transport and Active Transport
 - 37. Endocytosis and Exocytosis
- 2.5 Meiotic errors**
 - 38. Chromosomal Mutations
 - 39. Chromosomal Mutations (Turner Syndrome)
 - 40. Point Mutation

Chapter # 03

Biological Molecules (68 Videos)

- 3.1 Carbohydrates**
 - 1. Carbohydrates
 - 2. Monosaccharides
 - 3. Monosaccharides
 - 4. Functions of Carbohydrates
- 3.2 Proteins**
 - 5. Structure of Amino Acid
 - 6. Peptide Linkage
 - 7. Structure of Protein
 - 8. More on Structure of Protein
 - 9. Functions of Protein
 - 10. Classification of Protein
- 3.3 Lipids**
 - 11. Lipids Characteristics
 - 12. Classification of Lipids
 - 13. Phospholipids
 - 14. Saturated and Unsaturated Fats
 - 15. Waxes and Terpenoids

16. Steroids

3.4 Structure and function of DNA

17. Types of Chromosomes
18. Composition of Chromosome
19. Organisms Have Number of Chromosomes Specific to Their Species
20. Number and Structure of Chromosome
21. The Chromosomal Theory of Inheritance
22. Gamete - A Vehicle of Inheritance
23. Gene, Chromosome, Chromatin
24. Comparison of DNA and RNA
25. DNA as Hereditary Material, vehicle
26. More on DNA as Hereditary Material, vehicle
27. Mononucleotide
28. Nucleotide and Polynucleotide
29. Structure and Role of Nucleic Acids
30. Dinucleotide (NAD)
31. Classification of Nucleotide
32. Watson and Crick Model of DNA
33. Types of RNA
34. Genetic Code
35. Significance of Base Sequence
36. Replication of DNA
37. DNA Replication in Prokaryotes and Eukaryotes
38. Types of Replication
39. The Meselson-Stahl Experiment
40. Replication of DNA
41. More on Mechanism of DNA Replication
42. Transcription
43. Advance Transcription
44. Advance Transcription
45. More on Transcription
46. More on Transcription
47. Translation
48. Advance Translation, Protein Synthesis
49. More on Translation
50. Difference between Translation in Prokaryotes and Eukaryotes
51. Genetic Code
52. Chromosomes, Genes and DNA
53. Structure of a Gene
54. Structure of a Gene
55. Genes and Enzymes
56. Experiment of Beadle and Tatum on Neurospora
57. One-Gene/One-Polypeptide

3.5 Structure and types of RNA

58. Types of RNA
59. Enzymes

60. Mechanism of Enzymes
61. Factors Effecting the Rate of Enzyme Action
62. Competitive Inhibitors, Non-Competitive Inhibitors
63. Feedback Inhibition
64. Venome Inhibitors
65. Classification of Enzymes
66. Nomenclature of Enzymes
67. Classification of Enzymes
68. Uses of Enzymes

Chapter # 04

Micro Biology (42 Videos)

4.1 Viral diseases

1. Viral Diseases
2. Some Diseases Common Diseases Caused by Viruses (Influenza, Common Co
3. Poliomyelitis
4. Measles

4.2 Reteroviruses and Acquired Immunodefici

5. Structure of HIV, Retrovirus
6. Structure of HIV, Retrovirus
7. Structure of HIV, Retrovirus
8. Poliomyelitis
9. Hepatitis A, B, C
10. Hepatitis D, E, F
11. Small Pox, Mumps, Influenza

4.3 Life cycle of Bacteriophage

12. Structure of Bacteriophage
13. Lytic Cycle of Bacteriophage
14. Lysogenic Cycle of Bacteriophage
15. Use of Bacteriophage in Genetic Engineering

4.4 Bacteria

16. Discovery of Bacteria
17. Occurrence of Bacteria
18. Structure of Bacteria (Capsule, Pilli and Slime)
19. Structure of Bacteria
20. Flagella and Its Structure
21. Cell Wall of Bacteria
22. Cell Membrane, Cytoplasmic Matrix
23. Mode of Nutrition in Bacteria
24. Mode of Nutrition in Bacteria
25. Reproduction in Bacteria

- 26. Transformation and Transduction
- 4.5 Antibiotics**
 - 27. Antibiotics
- 4.6 Molds (fungi)**
 - 28. Characteristics of Fungi
 - 29. Characteristics of Fungi
 - 30. Taxonomic Status of Fungi
 - 31. Nutrition in Fungi
 - 32. Mutualism, lichen
 - 33. Mutualism, lichen
 - 34. Mutualism, lichen
 - 35. Reproduction in Fungi
- 4.7 Life cycle of fungus (Rhizopus)**
 - 36. Classification of Fungi, Zygomycota
 - 37. Ascomycota
 - 38. Basidiomycota
 - 39. Life Cycle of Smut
 - 40. Deuteromycota
 - 41. Land Adaptation of Fungi
 - 42. Importance of Fungi

Chapter # 05

Kingdom Animalia (21 Videos)

- 5.1 Porifera**
 - 1. Phylum porifera
 - 2. Generalized Sponge Anatomy
- 5.2 Coelenterata**
 - 3. Phylum Coelenterata
 - 4. Advance Phylum Coelenterata
 - 5. Advance Phylum Coelenterata
- 5.3 Platyhelminthes**
 - 6. Phylum Platyhelminthes
 - 7. More on Phylum Platyhelminthes
 - 8. Liver Fluke, Tapeworm
- 5.4 Aschelminthes**
 - 9. Phylum Nematoda
 - 10. More on Phylum Nematoda
- 5.5 Arthropoda**

11. Phylum Arthropoda
12. More on Phylum Arthropoda
13. Classification of Arthropods
14. Metamorphosis
15. Some Insects Being The Vectors of Diseases
16. Echinodermata
17. More on Phylum Echinodermata
18. Phylum Hemichordata
19. Criteria for Animal Classification
20. Grade Radiata, Bilateria
21. Diploblastic and Triploblastic Organization

Chapter # 06

Human Physiology (100 Videos)

6.1 Digestive System

No videos available yet. Still under development.

6.2 Gas exchange and Transportation

No videos available yet. Still under development.

6.3 Excretion and Osmoregulation

1. Structure of Kidney
2. Structure of Nephron
3. Type of Nephron
4. Functions of Kidney
5. Function of Kidney
6. Effects of Hormones on The Working of Kidney
7. Effects of Hormones on The Working of Kidney
8. Kidney as Osmoregulatory Organ
9. Urea Formation, Kidney Filtration
10. Kidney Stones
11. Kidney Stone
12. Urinary Tract Infections (UTIs)
13. Urinary Tract Infections (UTIs)
14. Kidney (Renal) Failure
15. Peritoneal Dialysis
16. Peritoneal Dialysis
17. Kidney Transplant

6.4 Nervous System

18. The Divisions of Brain, Forebrain
19. The Divisions of Brain, Forebrain
20. Midbrain and Hindbrain
21. Spinal Cord

- 22. More on Spinal cord
- 23. Spinal Cord
- 24. Peripheral Nervous System
- 25. Peripheral Nervous System
- 26. Peripheral Nervous System
- 27. More on Peripheral Nervous System (PNS)
- 28. Reflex Action
- 29. Nerve Cell or Neuron
- 30. Nerve Types
- 31. Types of Neurons
- 32. Nervous Tissue
- 33. Paralysis
- 34. Epilepsy
- 35. Alzheimer's Disease
- 36. Parkinson's Disease
- 37. Multiple Sclerosis
- 38. Huntingtons Disease
- 39. Biological Clocks and Circadian Rhythms

6.5 Reproduction

- 40. Male Reproductive System
- 41. Male Reproductive System
- 42. Function of Male Reproductive System
- 43. Hormonal Control of Male Reproductive System
- 44. Female Reproductive System
- 45. Function of Female Reproductive System
- 46. Function of Female Reproductive System
- 47. Function of Female Reproductive System
- 48. Hormonal Control of Reproductive Cycles
- 49. Gametogenesis
- 50. AIDS, A Sexually Transmitted Disease

6.6 Support and Movement

- 51. Role of Skeletal System
- 52. Locomotion in Mammals
- 53. Human Skeleton, Axial Skeleton
- 54. Ribs
- 55. Pelvic Girdle and Hind Limb
- 56. Skull
- 57. Types of Joints
- 58. More on Joints
- 59. Synovial Joint
- 60. Arrangement of Skeletal Muscles for Skeletal Movement
- 61. Smooth and Cardiac Muscles
- 62. Skeletal Muscles , Skeletal Muscle Fiber
- 63. More on Skeletal Muscles , Skeletal Muscle Fiber
- 64. Ultra Structure of Microfilaments
- 65. Ultra Structure of Microfilaments

- 66. How Bridges are Controlled
- 67. Controlling the Actin-Myosin Interaction by Ca^{++} ions
- 68. Energy for Muscle Contraction, Muscle Fatigue
- 69. Tetany and Cramp

6.7 Hormonal control (Endocrine glands)

- 70. Mode of Hormone Action
- 71. Chemical Nature of Hormone
- 72. Important Endocrine Glands
- 73. Pituitary Gland
- 74. Pituitary's Median lobe and posterior lobe
- 75. Thyroid Gland
- 76. Parathyroid Glands
- 77. Adrenal Glands
- 78. Pancreas
- 79. Gonads
- 80. Feedback Mechanism

6.8 Immunity

- 81. Immunity, Immunology, Immune System
- 82. First Line of Defense
- 83. Second Line of Defense
- 84. Chemical Components of the Skin's Defense
- 85. Cilia and Mucus
- 86. Killing Cells of Blood, Macrophages
- 87. Neutrophils, Natural Killer Cells
- 88. Complement System
- 89. Interferon
- 90. Inflammatory Response as one of the non specific Defenses
- 91. Pyrexia and Pyrogens
- 92. Ways the Fever kills Microbes
- 93. The Specific Defenses (Third Line of Defense)
- 94. Vaccination a Mean to Develop Active Acquired Immunity
- 95. Vaccination a Mean to Develop Active Acquired Immunity
- 96. The Antibody Mediated Immune Response
- 97. Structure Model of Antibodies
- 98. Role of Memory Cell in Immunity
- 99. Allergies
- 100. Role of T-Cells and b-Cells in Transplant Rejection
- 101. Autoimmune Disease

Chapter # 07

Bioenergetics (33 Videos)

7.1 Photosynthetic pigments and their absor

1. Photosynthesis
2. Photosynthesis
3. Most of Life forms are dependent on Photosynthesis
4. Role of Chlorophyll and Light
5. Absorption Spectrum
6. Water and Photosynthesis
7. Water and Photosynthesis
8. Chloroplasts, The Sites of Photosynthesis
9. Chlorophyll
10. Role of Photosynthetic Pigments, Carotenoids
11. Chlorophyll, Chemical Structure of Chlorophyll
12. Role of Carbon Dioxide as one of the raw materials of Photosynthesis

7.2 Light dependent stage

13. More on Photosynthesis
14. More on Photosynthesis
15. More on Light Reaction
16. Cyclic Phosphorylation
17. Non-cyclic Phosphorylation
18. Non-cyclic Phosphorylation

7.3 Light independent stage

19. Role of ATP as Energy Currency
20. Comparison of Photosynthesis and Respiration

7.4 Respiration at cellular level

21. Cyclic Phosphorylation
22. Non-cyclic Phosphorylation
23. Respiration
24. Anaerobic Respiration
25. Types of Fermentation
26. Aerobic Respiration
27. Cellular Respiration, Gaseous Exchange and Breathing
28. Mechanism of Respiration, Glycolysis
29. Oxidation of Pyruvic Acid and Krebs Cycle
30. Respiratory chain
31. Synthesis of ATP, Chemiosmosis
32. Photorespiration
33. The Energy Transfer Process

Chapter # 08

Bioenergetics (45 Videos)

8.1 Recombinant DNA Technology

1. Genetic Engineering
2. Scope and Importance of Biotechnology
3. Recombinant DNA Technology
4. Advance Recombinant DNA Technology, How to Get a Gene
5. Recombinant DNA Technology Depends on Enzymes
6. Molecular Scissors: Restriction Endonucleases
7. Molecular Carrier: Vector
8. More on Molecular Carrier (Vector)
9. DNA Ligase and Expression System
10. Insulin production
11. Isolating the Insulin Gene
12. Selection of Genetically Modified Bacteria
13. Expression of the Recombinant DNA
14. Genomic Library
15. Using Probe for Searching Gene in Genomic Library

8.2 Recombinant DNA Technology

16. The Polymerase Chain Reaction
17. Components of PCR
18. Components of PCR
19. Applications of PCR

8.3 Recombinant DNA Technology

20. Gene Therapy
21. Gene Therapy (Ex-Vivo)
22. Gene Therapy In-Vivo Method
23. Cystic Fibrosis
24. Role of Biotechnology in Diagnosis of Diseases
25. Monoclonal Antibodies in Diagnosis of Diseases
26. Bio-Chips
27. Bio-Fertilizers
28. Nanotechnology
29. Genetically Modified Organisms
30. Transgenic Bacteria
31. Role of Transgenic Bacteria in Human Welfare
32. Ecological Concerns Surrounding Transgenic Bacteria
33. Transgenic Plants
34. Agrobacterium Mediated Transformation
35. Electroporation Method
36. Particle gun Method
37. Agricultural plants With Improved Traits
38. Transgenic Animals
39. Transgenic or Genetically modified Animals
40. Methods of Creation of Transgenic Animals
41. Application of Transgenic Animals
42. Cloning of Transgenic Animals

- 43. Uses and Applications of Biotechnology(With Reference to Plants)
- 44. Uses and Applications of Biotechnology(With Reference to Animals)
- 45. Uses and Applications of Biotechnology(With Reference to Bacteria)

Chapter # 09

Ecosystem (0 Videos)

9.1 Components of Ecosystem

No vidoes available yet. Still under development.

9.2 Biological Succession

No vidoes available yet. Still under development.

9.3 Significance of Human activity on ecosy

No vidoes available yet. Still under development.

Chapter # 10

Evolution and Genetics (43 Videos)

10.1 Theory of Darwin and Lamarck

1. Lamarckism
2. Inheritance of Acquired Characteristics
3. Objections on Lamarckian Theory
4. Theory of Natural Selection
5. More on Theory of Natural Selection
6. Objections to Darwin's Natural Selection Theory of Organic Evolution
7. Objections to Darwin's Natural Selection Theory of Organic Evolution

10.2 Evidences of evolution from paleontology

8. Biogeography, The Fossil Record and Comparative Anatomy
9. Comparative Embryology and Molecular Biology

10.3 Sex determination and sex linkage in hu

10. Determination of Sex in Man by X and Y Chromosomes
11. Maleness, Sex Determination of Maleness by 'SRY' Gene
12. Sex-Linkage in Human
13. X- linked Dominant Inheritance

14. X- linked Recessive Inheritance
15. Y- linked Inheritance
16. Patterns of Sex Determination
17. Patterns of Sex Determination
18. Mutations
19. Importance of Mutation
20. Chromosomal Mutations
21. Chromosomal Mutations (Turner Syndrome)
22. Point Mutation
23. Role of Gene Mutation & Chromosomal Mutation In Natural Selection
24. Chromosomes, Genes and DNA
25. Structure of a Gene
26. Genes, Alleles, Locus, Phenotype, Genotype
27. Gene Pool
28. Complete Dominance
29. Incomplete Dominance
30. Over Dominance
31. Co-Dominance
32. Co-Dominance
33. MN Blood Type (Blood Group System)
34. Multiple Alleles
35. ABO-Blood Group
36. Erythroblastosis fetalis
37. Bombay Phenotype
38. Epistasis
39. Wheat Grain Color
40. Human Skin Color
41. Pleiotropy
42. Qualitative Traits
43. Quantitative Traits