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- 1. Physics and Measurement** **3-13**
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- 2. Kinematics (Motion in One Dimension)** **14-26**
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- 3. Kinematics (Motion in Two Dimensions)** **27-44**
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- 4. Laws of Motion** **47-64**
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- 5. Work, Energy and Power** **65-79**
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- 6. Rotational Motion** **80-95**
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- 7. Gravitation** **95-108**
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- 8. Properties of Solids** **111-121**
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- 9. Mechanical Properties of Fluids** **122-135**
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- 10. Thermal Properties of Matter** **136-147**
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- 11. Thermodynamics** **148-162**
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- 12. Kinetic Theory of Gases** **163-176**
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- 13. Simple Harmonic Motion** **179-192**
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- 14. Wave Motion** **193-208**
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- 15. Electrostatics** **211-232**
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- 16. Capacitance** **233-243**
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- 17. Current Electricity** **244-262**
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- 18. Magnetic Effects of Current** **265-285**
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19. Magnetism and Matter 286-297

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20. EM Induction and AC 298-319

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21. Electromagnetic Waves 320-330

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Unit Test 6 331-332

22. Ray Optics 333-353

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23. Wave Optics 354-366

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Unit Test 7 367-368

24. Dual Nature of Matter and Radiation 369-381

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25. Atoms 382-394

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26. Nuclear Physics and Radioactivity 395-406

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27. Electronic Devices 407-430

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28. Communication Systems 431-442

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29. Experimental Physics 443-464

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CHEMISTRY

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2. Chemical Equations and Stoichiometry 480-488

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3. States of Matter : Gaseous and Liquid States 489-502

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4. States of Matter : Solid State 503-516

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5. Atomic Structure 517-531

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6. Chemical Bonding and Molecular Structure 532-548

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7. Chemical Thermodynamics 551-560

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8. Solutions 561-574

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Unit Test 6 **849-850**

- 29. Organic Compounds Containing Halogens** **851-863**
preparation and properties of alkyl/aryl halides, nucleophilic substitution reactions and polyhalogen compounds.
- 30. Alcohols, Phenols and Ether** **864-879**
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- 31. Aldehydes, Ketones and Carboxylic Acids** **880-897**
Cannizzaro reaction, reduction reactions of aldehydes and ketones, acidic strength of carboxylic acids, esterification.
- 32. Organic Compounds Containing Nitrogen** **898-910**
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Unit Test 7 **911-912**

- 33. Polymers** **913-923**
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- 34. Biomolecules** **924-936**
monosaccharides, oligosaccharides, amino acids, essential and non-essential amino acids, structure of proteins, classification of vitamins and nucleic acids.
- 35. Chemistry in Everyday Life** **937-945**
analgesics, tranquilizers, antiseptics, antibiotics, antimicrobials and their common examples especially their chemical structure.
- 36. Principles related to Practical Chemistry** **946-962**
detection of functional groups, titration, qualitative salt analysis etc.

Unit Test 8 **963-964**

MATHEMATICS

- 1. Sets and Relations** **967-980**
equivalence relation, subset, power set and algebraic properties of sets.
- 2. Functions** **981-996**
domain and range of function, injective, surjective and bijective function. They should also concentrate on composition of functions.
- Unit Test 1** **997-998**
- 3. Complex Numbers** **999-1016**
on modulus, conjugate, triangle inequality, argument, square root and cube root numbers.
- 4. Quadratic Equations** **1017-1029**
relation between roots and coefficients, nature of roots and location of roots.
- 5. Matrices** **1030-1044**
on all types of matrices, multiplication of matrices, symmetric and skew-symmetric matrices and invertible matrices.

- 6. Determinants** **1045-1064**
on properties of determinant, properties of adjoint, conditions of consistency of system of equations and Cramer's rule for solving system of equations.

Unit Test 2 **1065-1066**

- 7. Permutation and Combination** **1067-1078**
on fundamental principle of counting, permutation, combination and dearrangement. Students should also concentrate on mixed problems of permutation and combination.
- 8. Principle of Mathematical Induction** **1079-1088**
mathematical statements (such as Sx , Sx^2 , Sx^3 ,). These statements help to solve the questions based on series, easily and quickly.
- 9. Binomial Theorem** **1089-1106**
binomial theorem, properties of binomial expansion and binomial coefficients, general term, middle term and greatest term and multinomial theorem.

- 10. Sequence and Series** 1107-1122
arithmetic progression, geometric progression
and sum of special series.

Unit Test 3 1123-1124

- 11. Limits** 1125-1136
series expansions, standard limits and also concentrate
on L'Hospital's rule along with indeterminate form.

- 12. Continuity** 1137-1149
types of continuity, properties of continuous
function and intermediate value theorem.

- 13. Differentiability and
Differentiation** 1150-1165
all the topics of differentiation.

- 14. Application of Derivatives** 1166-1184
maximum and minimum values, tangent and normal,
rate of change and increasing and decreasing functions.

Unit Test 4 1185-1186

- 15. Indefinite Integration** 1187-1201
method of substitution, algebraic integrals,
integration of the form $\int e^x [f(x) + f'(x)] dx$,
integration by partial fraction and integration by parts.

- 16. Definite Integrals and its
Applications** 1202-1221
properties of definite integrals, integral as a limit of sum, and
area of the region bounded by curves and tracing of curves.

- 17. Differential Equations** 1222-1238
order and degree of differential equation, solution of
differential equation by variable separable form,
homogeneous equation and linear differential equation.

Unit Test 5 1239-1240

- 18. Cartesian Coordinate System** 1241-1261
straight line, triangle and its centres, locus.

- 19. Circle** 1262-1276
special cases of circles, equation of tangent, condition
for a line to be a tangent to a circle, intersection of a
line and a circle and family of circles.

- 20. Conic Sections** 1277-1303
parabola, ellipse, hyperbola and their tangents and normals.

Unit Test 6 1304-1305

- 21. Trigonometric Functions, Identities
and Equations** 1306-1321
trigonometric ratios, trigonometric functions, related angles
and all formulae regarding angles, trigonometric identities
and solutions of trigonometric equations.

- 22. Inverse Trigonometric Functions** 1322-1334
sequence, differentiation, trigonometry

- 23. Properties of Triangles, Height and
Distances** 1335-1353
relation between the sides and angles, circles connected with
triangles, regular polygon and height and distances.

Unit Test 7 1354-1355

- 24. Vector Algebra** 1356-1373
addition and subtraction of vectors, vector multiplication by
scalar, collinearity and coplanarity, dot product and vector
product of two vectors, scalar triple product,
vector triple product, area of parallelogram and triangle.

- 25. Three Dimensional Geometry** 1374-1396
changing unsymmetrical form to symmetrical form,
perpendicular distance of a point from a line, skew-lines,
shortest distance between two skew-lines, angle between
two planes, equation of a plane through the intersection of
two planes, angle between a line and a plane, distance of a
point from a plane.

- 26. Probability** 1397-1411
addition, multiplication theorem, independent
events, conditional probability, Baye's theorem
and binomial distribution are important topics.

- 27. Statistics** 1412-1424
variance, standard deviation, mean deviation
about mean or median and arithmetic mean.

- 28. Mathematical Reasoning** 1425-1434
logical operations, truth value and truth table
and algebra of statements.

Unit Test 8 1435-1436

10 Mock Tests 1439-1562

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