

**SYLLABUS BREAK-UP FOR THE SESSION 2017-18  
CLASS- XI**

**ENGLISH (CORE)**

Students are expected to have acquired a reasonable degree of language proficiency in English by the time they come to class XI, and the course will aim, essentially, at promoting the higher-order language skills.

**The general objectives at this stage are:**

- i) to listen and comprehend as well as record in writing oral presentations on a variety of topics.
- ii) to develop greater confidence and proficiency in the use of language skills necessary for social and academic purpose.
- iii) to participate in group discussions, interviews by making short oral presentation on various topics.
- iv) to perceive the overall meaning and organisation of the text (i.e., the relationships of the different "chunks" in the text to each other).
- v) to identify the central/main point and supporting details, etc., to build communicative competence in various registers of English.
- vi) to promote advanced language skills with an aim to develop the skills of reasoning, drawing inferences, etc. through meaningful activities.
- vii) to translate texts from mother tongue(s) into English and vice versa.
- viii) to develop ability and knowledge required in order to engage in independent reflection and enquiry.

**OBJECTIVES OF ASSESSMENT FOR LISTENING SKILL**

To enable learners to:

- understand a range of genres and contexts of spoken English including academic, personal and social aspect.
- understand detailed information for a purpose.
- understand and interpret a range of features of the given context.
- understand the topic and the main points and also to distinguish the main points from the details.

**OBJECTIVES OF ASSESSMENT FOR SPEAKING SKILL**

To enable the learners to:

- express and respond to personal feelings and opinions.
- present oral reports or summaries; narrate incidents or events.
- present, adopt different strategies to convey ideas according to purpose, topic and audience, and to frame questions so as to elicit desired response.
- to take part in group discussions, summaries ideas, elicit views of others, express and argue a point of view clearly.
- participate in spontaneous spoken course.

**TEXT BOOKS:**

HORNBILL BY NCERT  
SNAPSHOT BY NCERT  
THE CANTERVILLE GHOST BY ORIENT BLACKSWAN

**REFERENCE BOOKS:**

## **MONTH – WISE SYLLABUS BREAK UP**

### **APRIL**

GRAMMAR- TENSES

NOVEL: L – 1, 2

HORNBILL: THE PORTRAIT OF A LADY

WRITING SKILL - FACTUAL DESCRIPTION, NOTICE

### **MONDAY TEST 1: APRIL 24, 2017(SYLLABUS)**

READING: COMPREHENSION

NOVEL: L- 1,2

GRAMMAR-TENSES

WRITING SKILL-NOTICE, FACTUAL DESCRIPTION

LITERATURE-THE PORTRAIT OF A LADY

### **MAY**

NOVEL: L –3,4,5

GRAMMAR- MODALS, DETERMINERS

WRITING SKILL- LETTER TO THE EDITOR, ARTICLE

### **JULY**

**NOVEL: L-6,7**

HORNBILL- A PHOTOGRAPH, DISCOVERING TUT

SNAPSHOTS -THE SUMMER OF THE BEAUTIFUL WHITE HORSE

WRITING SKILL – NOTE MAKING, ARTICLE, JOB APPLICATION

### **AUGUST**

HORNBILL -CHILDHOOD

SNAPSHOTS -ALBERT EINSTEIN AT SCHOOL, RANGA’S MARRIAGE

WRITING SKILL- SPEECH, BUSINESS LETTER-MAKING ENQUIRY, COMPLAINT, PLACING & CANCELLING ORDER

### **MONDAY TEST 2: AUGUST 21, 2017 (SYLLABUS)**

READING: COMPREHENSION

NOVEL: L- 3,4

GRAMMAR-MODALS, DETERMINERS

WRITING SKILL-LETTER TO EDITOR

LITERATURE-A PHOTOGRAPH, DISCOVERING TUT

## **ASSESSMENT OF SPEAKING & LISTENING SKILLS**

### **SEPTEMBER**

HORNBILL -AILING PLANET

SNAPSHOTS- THE ADDRESS

## **MID TERM- COMPLETE SYLLABUS COVERED TILL THE COMMENCEMENT OF MID TERM**

## **OCTOBER**

HORNBILL -THE BROWNING VERSION, VOICE OF THE RAIN  
SNAPSHOTS- THE MOTHER'S DAY

## **NOVEMBER**

HORNBILL-FATHER TO SON  
SNAPSHOTS-BIRTH  
GRAMMAR- CLAUSES

### **MONDAY TEST 3: NOVEMBER 13, 2017 (SYLLABUS)**

#### **READING – NOTE MAKING**

LITERATURE -MOTHER'S DAY, FATHER TO SON  
WRITING SKILL-BUSINESS LETTERS  
INTEGRATED GRAMMAR PRACTICE

### **ASSESSMENT OF SPEAKING & LISTENING SKILLS**

## **DECEMBER**

SNAPSHOTS-THE TALE OF THE MELON CITY  
WRITING SKILL-POSTER

## **JANUARY**

HORNBILL- WE'RE NOT AFRAID TO DIE  
WRITING SKILL- DEBATE

## **ANNUAL TERM**

COMPLETE SYLLABUS

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## **MATHEMATICS (2017-18)**

### **Objectives**

The broad objectives of teaching Mathematics at senior school stage intend to help the students:

- To acquire knowledge and critical understanding, particularly by way of motivation and visualization, of basic concepts, terms, principles, symbols and mastery of underlying processes and skills.
- To feel the flow of reasons while proving a result or solving a problem.
- To apply the knowledge and skills acquired to solve problems and wherever possible, by more than one method.
- To develop positive attitude to think, analyze and articulate logically.
- To develop interest in the subject by participating in related competitions.
- To acquaint students with different aspects of Mathematics used in daily life.
- To develop an interest in students to study Mathematics as a discipline.

- To develop awareness of the need for national integration, protection of environment, observance of small family norms, removal of social barriers, elimination of gender biases.
- To develop reverence and respect towards great Mathematicians for their contributions to the field of Mathematics

Prescribed Books:

- Mathematics - Textbook for Class XI, NCERT Publication
- Mathematics Exemplar Problems - Textbook for Class XI, NCERT Publication

Reference Book:

- Mathematics class XI by Dr. R.D.Sharma (Dhanpat Rai Publications Private Limited)

### **MONTH -WISE SYLLABUS BREAK - UP**

#### **APRIL**

##### **Sequence and Series:**

Sequence and Series. Arithmetic Progression (A. P.). Arithmetic Mean (A.M.) Geometric Progression (G.P.), general term of a G.P., sum of n terms of a G.P., Arithmetic and Geometric series infinite G.P. and its sum, geometric mean (G.M.), relation between A.M. and G.M. Sum to n terms of the special sequences.

#### **MAY**

##### **Trigonometric Functions:**

Positive and negative angles. Measuring angles in radians and in degrees and conversion from one measure to another. Definition of trigonometric functions with the help of unit circle. Signs of trigonometric functions. Domain and range of trigonometric functions and their graphs. . General solution of trigonometric equations . Proof and simple applications of sine and cosine formulae.

#### **JULY**

##### **Sets:**

Sets and their representations. Empty set. Finite and Infinite sets. Equal sets. Subsets. Subsets of a set of real numbers especially intervals (with notations). Power set. Universal set. Venn diagrams. Union and Intersection of sets. Difference of sets. Complement of a set. Properties of Complement Sets.

##### **Relations & Functions:**

Ordered pairs, Cartesian product of sets. Number of elements in the cartesian product of two finite sets. Cartesian product of the set of reals with itself (upto  $R \times R \times R$ ). Definition of relation, pictorial diagrams, domain, co-domain and range of a relation. Function as a special kind of relation from one set to another. Pictorial representation of a function, domain, co-domain and range of a function. Real valued functions, domain and range of these functions, constant, identity, polynomial, rational, modulus, signum and greatest integer functions, with their graphs. Sum, difference, product and quotients of functions. Concept of exponential and logarithmic function.

##### **Principle of Mathematical Induction:**

Process of the proof by induction, motivating the application of the method by looking at natural numbers as the least inductive subset of real numbers. The principle of mathematical induction and simple applications.

#### **AUGUST**

### **Complex Numbers and Quadratic Equations:**

Need for complex numbers, especially, to be motivated by inability to solve some of the quadratic equations. Algebraic properties of complex numbers. Argand plane and polar representation of complex numbers. Statement of Fundamental Theorem of Algebra, solution of quadratic equations in the complex number system. Square root of a complex number.

### **Linear Inequalities:**

Linear inequalities. Algebraic solutions of linear inequalities in one variable and their representation on the number line. Graphical solution of linear inequalities in two variables. Graphical solution of system of linear inequalities in two variable

## **SEPTEMBER**

### **Permutations and Combinations:**

Fundamental principle of counting. Factorial Permutations and combinations, derivation of formulae and their connections, simple applications

## **OCTOBER**

### **Binomial Theorem:**

History, statement and proof of the binomial theorem for positive integral indices. Pascal's triangle, General and middle term in binomial expansion, simple applications.

### **Straight Lines:**

Brief recall of two dimensional geometry from earlier classes. Shifting of origin. Slope of a line and angle between two lines. Various forms of equations of a line: parallel to axis, point-slope form, slope-intercept form, two-point form, intercept form and normal form. General equation of a line. Equation of family of lines passing through the point of intersection of two lines. Distance of a point from a line.

## **NOVEMBER**

### **Conic Sections:**

Sections of a cone: circles, ellipse, parabola, hyperbola, a point, a straight line and a pair of intersecting lines as a degenerated case of a conic section. Standard equations and simple properties of parabola, ellipse and hyperbola. Standard equation of a circle.

### **Introduction to Three-dimensional Geometry**

Coordinate axes and coordinate planes in three dimensions. Coordinates of a point. Distance between two points and section formula

### **Statistics:**

Measures of dispersion; mean deviation, variance and standard deviation of ungrouped/grouped data. Analysis of frequency distributions with equal means but different variances.

## **DECEMBER**

### **Limits and Derivatives:**

Derivative introduced as rate of change both as that of distance function and geometrically. Intuitive idea of limit. Limits of polynomials and rational functions trigonometric, exponential and logarithmic functions. Definition of derivative relate it to slope of tangent of the curve, derivative of sum, difference, product and quotient of functions. Derivatives of polynomial and trigonometric functions

**Probability:**

Random experiments; outcomes, sample spaces (set representation). Events; occurrence of events, 'not', 'and' and 'or' events, exhaustive events, mutually exclusive events, Axiomatic (set theoretic) probability, connections with the theories of earlier classes. Probability of an event, probability of 'not', 'and' and 'or' events

**JANUARY AND FEBRUARY**

Revision of the whole syllabus and the revision of model test papers

**TEST –WISE SYLLABUS BREAK - UP****MONDAY TEST – 1**

Chapter 9 from N.C.E.R.T textbook

**MID – TERM EXAM**

Chapters 1-6 and Chapter 9 from N.C.E.R.T textbook

**MONDAY TEST – 2**

Chapters 7-8 from N.C.E.R.T textbook

**MONDAY TEST – 3**

Chapters 10-12 from N.C.E.R.T textbook

**ANNUAL EXAM**

Whole Syllabus

**MONTHWISE SYLLABUS BREAKUP**

Subject – **Physics** (SUBJECT CODE - 042)

**OBJECTIVES:**

Senior Secondary stage of school education is a stage of transition from general education to discipline-based focus on curriculum. The present updated syllabus keeps in view the rigour and depth of disciplinary approach as well as the comprehension level of learners. Due care has also been taken that the syllabus is comparable to the international standards. Salient features of the syllabus include:

- Emphasis on basic conceptual understanding of the content.
- Emphasis on use of SI units, symbols, nomenclature of physical quantities and formulations as per international standards.
- Providing logical sequencing of units of the subject matter and proper placement of concepts with their linkage for better learning.
- Reducing the curriculum load by eliminating overlapping of concepts/content within the discipline and other disciplines.
- Promotion of process-skills, problem-solving abilities and applications of Physics concepts.

**Besides, the syllabus also attempts to**

- strengthen the concepts developed at the secondary stage to provide firm foundation for further learning in the subject.

- expose the learners to different processes used in Physics-related industrial and technological applications.
- develop process-skills and experimental, observational, manipulative, decision making and investigatory skills in the learners.
- promote problem solving abilities and creative thinking in learners.
- develop conceptual competence in the learners and make them realize and appreciate the interface of Physics with other disciplines.

### Recommended Textbooks.

1. Physics Part-I, Textbook for Class XI, Published by NCERT
2. 2 . Physics Part-II, Textbook for Class XI, Published by NCERT

### Reference books:

1. New simplified Physics. by S.L. Arora, Publisher- Dhanpat Rai & Co.
2. Fundamental Physics . by K.L. Gogia and Gomber, Publisher- Pradeep Publications

## JULY

### Unit I: Physical World and Measurement

#### Chapter 1 : Physical World

Physics - scope and excitement; nature of physical laws; Physics, technology and society.

#### Chapter 2 : Units And Measurement

Need for measurement: Units of measurement; systems of units; SI units, fundamental and derived units. Length, mass and time measurements; accuracy and precision of measuring instruments; errors in measurement; significant figures.

Dimensions of physical quantities, dimensional analysis and its applications.

### Unit II: Kinematics

#### Chapter 3 : Motion In A Straight Line

Frame of reference, Motion in a straight line: Position-time graph, speed and velocity.

Elementary concepts of differentiation and integration for describing motion. Uniform and non-uniform motion, average speed and instantaneous velocity. Uniformly accelerated motion, velocity

time and position-time graphs. Relations for uniformly accelerated motion (graphical treatment).

### Practicals

Expt.1	To measure diameter of a small spherical/cylindrical body and to measure internal diameter and depth of a given beaker/calorimeter using <b>Vernier Callipers</b> and hence find its volume.
Expt.2	To measure diameter of a given wire and thickness of a given sheet using <b>screw gauge</b> .
Expt.3	To determine volume of an <b>irregular lamina</b> using screw gauge.
Expt.4	To determine radius of curvature of a given spherical surface by a <b>spherometer</b>
Act. 1	To make a paper scale of given least count, e.g., 0.2cm, 0.5 cm.

Act. 2	To determine mass of a given body using a metre scale by principle of moments.
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**Revision :- Monthly Test I** Unit I, II

**AUGUST**

**Chapter 4 : Motion In A Plane**

Scalar and vector quantities; Position and displacement vectors, general vectors and their notations; equality of vectors, multiplication of vectors by a real number; addition and subtraction of vectors. Relative velocity. Unit vector; Resolution of a vector in a plane - rectangular components. Scalar and Vector product of vectors.

Motion in a plane. Cases of uniform velocity and uniform acceleration-projectile motion. Uniform circular motion.

*Unit III: Laws of Motion*

**Chapter 5 : Laws Of Motion**

Intuitive concept of force. Inertia, Newton's first law of motion; momentum and Newton's second law of motion; impulse; Newton's third law of motion. Law of conservation of linear momentum and its applications. Equilibrium of concurrent forces. Static and kinetic friction, laws of friction, rolling friction, lubrication. Dynamics of uniform circular motion: Centripetal force, examples of circular motion (vehicle on a level circular road, vehicle on banked road).

**Practicals**

Expt.5	To find the weight of a given body using <b>parallelogram law</b> of vectors.
Expt.6	Using a <b>simple pendulum</b> , plot L-T and L-T <sup>2</sup> graphs. Hence find the effective length of second's pendulum using appropriate graph.
Act 3	To study the conservation of energy of a ball rolling down on an inclined plane (using a double inclined plane).
Act 4	To observe and explain the effect of heating on a bi-metallic strip.

**SEPTEMBER**

*Unit IV: Work, Energy and Power*

**Chapter 6 : Work, Energy And Power**

Work done by a constant force and a variable force; kinetic energy, work-energy theorem, power.

Notion of potential energy, potential energy of a spring, conservative forces: conservation of mechanical energy (kinetic and potential energies); non-conservative forces: motion in a vertical circle; elastic and inelastic collisions in one and two dimensions.

*Unit V: Motion of System of Particles and Rigid Body*

**Chapter 7 : Systems Of Particles And Rotational Motion**

Centre of mass of a two-particle system, momentum conservation and centre of mass motion.

Centre of mass of a rigid body; centre of mass of a uniform rod. Moment of a force, torque, angular momentum, laws of conservation of angular momentum and its applications.



Equilibrium of rigid bodies, rigid body rotation and equations of rotational motion, comparison of linear and rotational motions.

### Practicals

Expt.7	To study the relationship between force of <b>limiting friction</b> and normal reaction and to find the coefficient of friction between a block and a horizontal surface.
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## OCTOBER

### Chapter 7 : Systems Of Particles And Rotational Motion (contd..)

Moment of inertia, radius of gyration. Values of moments of inertia, for simple geometrical objects

(no derivation). Statement of parallel and perpendicular axes theorems and their applications.

### *Unit VI: Gravitation*

### Chapter 8 : Gravitation

Keplar's laws of planetary motion.The universal law of gravitation. Acceleration due to gravity and its variation with altitude and depth. Gravitational potential energy and gravitational potential. Escape velocity. Orbital velocity of a satellite. Geo-stationary satellites.

### Practicals

Expt.8	To find the <b>downward force</b> , along an inclined plane, acting on a roller due to Gravitational pull of the earth and study its relationship with the angle of inclination by plotting graph between force and sin.
Expt.9	To find the force constant of a <b>helical spring</b> by plotting a graph between load and extension
Act 5	To note the change in level of liquid in a container on heating and interpret the observations.
Act 6	To study the effect of load on depression of a suitably clamped metre scale loaded at (i) its end (ii) in the middle.

**Revision :-** Monthly Test II *Unit IV, V*

## NOVEMBER

### *Unit VII: Properties of Bulk Matter*

### Chapter 9 : Mechanical Properties Of Solids

Elastic behaviour, Stress-strain relationship, Hooke's law, Young's modulus, bulk modulus, shear modulus of rigidity, Poisson's ratio; elastic energy.

### Chapter 10 : Mechanical Properties Of Fluids

Pressure due to a fluid column; Pascal's law and its applications (hydraulic lift and hydraulic brakes).

Effect of gravity on fluid pressure.

Viscosity, Stokes' law, terminal velocity, streamline and turbulent flow, critical velocity. Bernoulli's

theorem and its applications.

Surface energy and surface tension, angle of contact, excess of pressure across a curved surface, application of surface tension ideas to drops, bubbles and capillary rise.

### Chapter 11 : **Thermal Properties Of Matter**

Heat, temperature, thermal expansion; thermal expansion of solids, liquids and gases, anomalous expansion of water; specific heat capacity;  $C_p$ ,  $C_v$  - calorimetry; change of state - latent heat capacity.

Heat transfer-conduction, convection and radiation, thermal conductivity, Qualitative ideas of Blackbody radiation, Wein's displacement Law, Stefan's law, Green house effect.

**Revision :-** Monthly Test III *Unit VI, VII*

### **Practicals**

Expt.1 0	To determine the surface tension of water by <b>capillary rise</b> method.
Expt.1 1	To determine the <b>coefficient of viscosity</b> of a given viscous liquid by measuring terminal velocity of a given spherical body.
Expt.1 2	To study the relationship between the temperature of a hot body and time by plotting a <b>cooling curve</b> .
Expt.1 3	To study the relation between the length of a given wire and tension for constant frequency using <b>sonometer</b> .
Expt.1 4	To find the speed of sound in air at room temperature using a <b>resonance tube</b> by two resonance positions

### DECEMBER

#### *Unit VIII: Thermodynamics*

### Chapter 12 : **Thermodynamics**

Thermal equilibrium and definition of temperature (zeroth law of thermodynamics). Heat, work and

internal energy. First law of thermodynamics. Isothermal and adiabatic processes.

Second law of thermodynamics: reversible and irreversible processes. Heat engine and refrigerator.

## Unit X: Oscillations and Waves

### Chapter 14 : Oscillations

Periodic motion - time period, frequency, displacement as a function of time. Periodic functions.

Simple harmonic motion (S.H.M) and its equation; phase; oscillations of a spring-restoring force and

force constant; energy in S.H.M. Kinetic and potential energies; simple pendulum derivation of expression for its time period. Free, forced and damped oscillations (qualitative ideas only), resonance.

#### Practicals

Expt.1 5	To determine <b>Young's modulus</b> of elasticity of the material of a given wire.
Demo- Exp 1&2	Projectile motion : Range of trajectory at different angles of projection. Applications of Bernoulli's principle.

## JANUARY

## Unit X: Oscillations and Waves

### Chapter 15 : Waves

Wave motion. Transverse and longitudinal waves, speed of wave motion. Displacement relation for a

progressive wave. Principle of superposition of waves, reflection of waves, standing waves in strings

and organ pipes, fundamental mode and harmonics, Beats, Doppler effect.

## FEBRUARY

**Revision :- Annual examination** (full syllabus)

### EXAMWISE SYLLABUS BREAKUP

#### **MONTHLY TEST I Unit I, II**

##### *Unit I: Physical World and Measurement*

Chapter 1 : Physical World

Chapter 2 : Units And Measurement

##### *Unit II: Kinematics*

Chapter 3 : Motion In A Straight Line

Chapter 4 : Motion In A Plane

#### **MONTHLY TEST II Unit IV, V**

*Unit IV: Work, Energy and Power*

Chapter 6 : Work, Energy And Power

*Unit V: Motion of System of Particles and Rigid Body*

Chapter 7 : Systems of Particles And Rotational Motion

**MONTHLY TEST III Unit VI, VII**

*Unit VI: Gravitation*

Chapter 8 : Gravitation

*Unit VII: Properties of Bulk Matter*

Chapter 9 : Mechanical Properties Of Solids

Chapter 10 : Mechanical Properties Of Fluids

Chapter 11 : Thermal Properties Of Matter

**MID-TERM EXAM.**

**(Unit I, II, III)**

*Unit I: Physical World and Measurement*

Chapter 1 : Physical World

Chapter 2 : Units And Measurement

*Unit II: Kinematics*

Chapter 3 : Motion In A Straight Line

Chapter 4 : Motion In A Plane

*Unit III: Laws of Motion*

Chapter 5 : Laws Of Motion

**PRACTICAL EXAMINATION (I) – 3 hr duration**

**MONTHLY TEST IV**

*Unit X: Oscillations and Waves*

Chapter 14 : Oscillations

Chapter 15 : Waves

**FINAL TERM EXAM. (Complete Syllabus)**

**(Unit I to Unit X, excluding unit IX)**

*Unit I: Physical World and Measurement*

Chapter 1 : Physical World

Chapter 2 : Units and Measurement

*Unit II: Kinematics*

Chapter 3 : Motion in a Straight Line

Chapter 4 : Motion in a Plane

*Unit III: Laws of Motion*

Chapter 5 : Laws of Motion

#### *Unit IV: Work, Energy and Power*

Chapter 6 : Work, Energy And Power

#### *Unit V: Motion of System of Particles and Rigid Body*

Chapter 7 : Systems Of Particles And Rotational Motion

#### *Unit VI: Gravitation*

Chapter 8 : Gravitation

#### *Unit VII: Properties of Bulk Matter*

Chapter 9 : Mechanical Properties of Solids

Chapter 10 : Mechanical Properties of Fluids

Chapter 11 : Thermal Properties of Matter

#### *Unit VIII: Thermodynamics*

Chapter 12 : Thermodynamics

#### *Unit X: Oscillations and Waves*

Chapter 14 : Oscillations

Chapter 15 : Waves

### **PRACTICAL EXAMINATION (II) – 3 hr duration**

### **CHEMISTRY (2017-18)**

#### **OBJECTIVES:**

The broad objectives of teaching Chemistry at Senior Secondary Stage are:

- to promote understanding of basic facts and concepts in chemistry while retaining the excitement of chemistry.
- to make students capable of studying chemistry in academic and professional courses (such as medicine, engineering, technology) at tertiary level.
- to expose the students to various emerging new areas of chemistry and apprise them with their relevance in future studies and their application in various spheres of chemical sciences and technology.
- to equip students to face various challenges related to health, nutrition, environment, population, weather, industries and agriculture.
- to develop problem solving skills in students.
- to expose the students to different processes used in industries and their technological applications.
- to apprise students with interface of chemistry with other disciplines of science such as physics, biology, geology, engineering etc.
- to acquaint students with different aspects of chemistry used in daily life.
- to develop an interest in students to study chemistry as a discipline.

#### **TEXT BOOKS**

- Chemistry Part -I, Class-XI, Published by NCERT.
- Chemistry Part -II, Class-XI, Published by NCERT.
- Together with Chemistry (Lab Manual) by Mrs Veena Suri, Rachna Sagar Pvt. Ltd.

#### **REFERENCE BOOKS**

- MODERN'S abc of chemistry (Part-I and Part-II)  
By – Dr. S.P.Jauhar  
Modern Publishers
- Pradeep's Chemistry (Part-I and Part-2) by S.C. Kheterpal and S.N. Dhawan

#### **MONTH WISE SYLLABUS BREAK-UP**

#### **APRIL & MAY**

#### **Unit I: Some Basic Concepts of Chemistry**

General Introduction: Importance and scope of chemistry.

Nature of matter, laws of chemical combination, Dalton's atomic theory: concept of elements, atoms and molecules.

Atomic and molecular masses, mole concept and molar mass, percentage composition, empirical and molecular formula, chemical reactions, stoichiometry and calculations based on stoichiometry.

### **Unit II: Structure of Atom**

Discovery of Electron, Proton and Neutron, atomic number, isotopes and isobars. Thomson's model and its limitations. Rutherford's model and its limitations, Bohr's model and its limitations, concept of shells and subshells, dual nature of matter and light, de Broglie's relationship, Heisenberg uncertainty principle, concept of orbitals

Quantum numbers, shapes of s, p and d orbitals, rules for filling electrons in orbitals - Aufbau principle, Pauli's exclusion principle and Hund's rule, electronic configuration of atoms, stability of half filled and completely filled orbitals.

### **Unit XIV: Environmental Chemistry**

Environmental pollution - air, water and soil pollution, chemical reactions in atmosphere, smog, major atmospheric pollutants, acid rain, ozone and its reactions, effects of depletion of ozone layer, greenhouse effect and global warming- pollution due to industrial wastes, green chemistry as an alternative tool for reducing pollution, strategies for control of environmental pollution.

#### **PRACTICALS:**

1. Determination of melting point of an organic compound
2. Determination of boiling point of an organic compound
3. Crystallization of impure sample of the following: Alum, copper sulphate.
4. Determination of pH of some solutions obtained from fruit juices, varied concentrations of acids, bases and salts using pH paper or universal indicator.
5. Comparing the pH of solutions of strong and weak acid of same concentration.

#### **JULY:**

Revision of **Unit I: Some Basic Concepts of Chemistry**

### **Unit II: Structure of Atom**

### **Unit III : Classification of Elements and Periodicity in Properties**

Significance of classification, brief history of the development of periodic table, modern periodic law and the present form of periodic table, periodic trends in properties of elements -atomic radii ionic radii, inert gas radii Ionization enthalpy, electron gain enthalpy, electronegativity, valency. Nomenclature of elements with atomic number greater than 100.

### **Unit IV: Chemical Bonding and Molecular structure**

Valence electrons, ionic bond, covalent bond; bond parameters, Lewis structure, polar character of covalent bond, covalent character of ionic bond, valence bond theory, resonance, geometry of covalent molecules, VSEPR theory, concept of hybridization, involving s,p and d orbitals and shapes of some simple molecules, molecular orbital theory of homonuclear diatomic molecules(qualitative idea only), hydrogen bond.

#### **PRACTICALS:**

- 1.Preparation of standard solution of Oxalic acid.
- 2.Preparation of standard solution of HCl.
3. Preparation of standard solution of Sodium carbonate.
4. Determination of strength of a given solution of Sodium Hydroxide by titrating it against standard solution of oxalic acid.

#### **AUGUST:**

### **Unit V: States of Matter: Gases and Liquids**

Three states of matter, intermolecular interactions, types of bonding, melting and boiling points, role of gas laws in elucidating the concept of the molecule, Boyle's law, Charles law, Gay Lussac's law, Avogadro's law, ideal behaviour, empirical derivation of gas equation, Avogadro's number,ideal gas equation. Deviation from ideal behaviour, liquefaction of gases, critical temperature, kinetic energy and molecular speeds (elementary idea)Liquid State- vapour pressure, viscosity and surface tension (qualitative idea only, no mathematical derivations)

### **Unit VIII: Redox Reactions**

Concept of oxidation and reduction, redox reactions, oxidation number, balancing redox reactions, in terms of loss and gain of electrons and change in oxidation number, applications of redox reactions

### **Unit X: s -Block Elements (Alkali and Alkaline Earth Metals)**

Group 1 and Group 2 Elements

General introduction, electronic configuration, occurrence, anomalous properties of the first element of each group, diagonal relationship, trends in the variation of properties (such as ionization enthalpy, atomic and ionic radii), trends in chemical reactivity with oxygen, water, hydrogen and halogens, uses.

#### **Preparation and Properties of Some Important Compounds:**

Sodium Carbonate, Sodium Chloride, Sodium Hydroxide and Sodium Hydrogencarbonate, Biological importance of Sodium and Potassium.

Calcium Oxide and Calcium Carbonate and their industrial uses, biological importance of Magnesium and Calcium

#### **PRACTICAL**

1. Determination of strength of a given solution of Hydrochloric acid by titrating it against standard solution of sodium carbonate.
2. Determination of strength of a given solution of Sodium Hydroxide by titrating it against standard solution of Hydrochloric acid.

### **SEPTEMBER**

### **Unit XI: Some p -Block Elements**

#### **General Introduction to p -Block Elements**

**Group 13 Elements:** General introduction, electronic configuration, occurrence, variation of properties, oxidation states, trends in chemical reactivity, anomalous properties of first element of the group, Boron - physical and chemical properties, some important compounds, Borax, Boric acid, Boron Hydrides, Aluminium: Reactions with acids and alkalis, uses.

**Group 14 Elements:** General introduction, electronic configuration, occurrence, variation of properties, oxidation states, trends in chemical reactivity, anomalous behaviour of first elements. Carbon-catenation, allotropic forms, physical and chemical properties; uses of some important compounds: oxides. Important compounds of Silicon and a few uses: Silicon Tetrachloride, Silicones, Silicates and Zeolites, their uses.

#### **PRACTICAL**

Determination of anions in the given salt..

Anions : CO<sub>3</sub>

2- , S<sup>2-</sup> , SO<sub>3</sub>

2- , NO<sub>2</sub>

- , Cl<sup>-</sup> , Br<sup>-</sup> , I<sup>-</sup> , NO<sub>3</sub>

- , CH<sub>3</sub>COO<sup>-</sup> , SO<sub>4</sub>

2- , PO<sub>4</sub>

3-

### **OCTOBER**

### **Unit VI: Chemical Thermodynamics**

Concepts of System and types of systems, surroundings, work, heat, energy, extensive and intensive properties, state functions. First law of thermodynamics -internal energy and enthalpy, heat capacity and specific heat, measurement of U and H, Hess's law of constant heat summation, enthalpy of bond dissociation, combustion, formation, atomization, sublimation, phase transition, ionization, solution and dilution. Second law of Thermodynamics (brief introduction). Introduction of entropy as a state function, Gibb's energy change for spontaneous and non-spontaneous processes, criteria for equilibrium. Third law of thermodynamics (brief introduction).

#### **Unit VII: Equilibrium**

Equilibrium in physical and chemical processes, dynamic nature of equilibrium, law of mass action, equilibrium constant, factors affecting equilibrium - Le Chatelier's principle.

#### **PRACTICALS:**

1. Determination of one anion and one cation in the given salt.

**Anions :** CO<sub>3</sub>2<sup>-</sup> , S<sup>2-</sup>- , SO<sub>3</sub>2<sup>-</sup> , NO<sub>2</sub>- , Cl<sup>-</sup> , Br<sup>-</sup> , I<sup>-</sup> , NO<sub>3</sub>- , CH<sub>3</sub>COO<sup>-</sup> , SO<sub>4</sub>- , PO<sub>4</sub>3<sup>-</sup>**Cations :** Pb<sup>2+</sup> , Cu<sup>2+</sup> , Al<sup>3+</sup> , Fe<sup>3+</sup> , Mn<sup>2+</sup> , Ni<sup>2+</sup> , Zn<sup>2+</sup> , Co<sup>2+</sup> , Ca<sup>2+</sup> , Sr<sup>2+</sup> , Ba<sup>2+</sup> , Mg<sup>2+</sup>

2. Detection of nitrogen, sulphur, Chlorine bromine and iodine in an organic compound.

**NOVEMBER:****Unit VII: Equilibrium (Contd.)**

Ionic equilibrium, ionization of acids and bases, strong and weak electrolytes, degree of ionization, ionization of poly basic acids, acid strength, concept of pH, buffer solution, solubility product, common ion effect (with illustrative examples).

**Unit XII: Organic Chemistry -Some Basic Principles and Technique**

General introduction, methods of purification, qualitative and quantitative analysis, classification and IUPAC nomenclature of organic compounds.

**PRACTICAL****Determination of one anion and one cation in the given salt.****Anions :** CO<sub>3</sub>2<sup>-</sup> , S<sup>2-</sup> , SO<sub>3</sub>2<sup>-</sup> , NO<sub>2</sub>- , Cl<sup>-</sup> , Br<sup>-</sup> , I<sup>-</sup> , NO<sub>3</sub>- , CH<sub>3</sub>COO<sup>-</sup> , SO<sub>4</sub>- , PO<sub>4</sub>3<sup>-</sup>**Cations :** Pb<sup>2+</sup> , Cu<sup>2+</sup> , Al<sup>3+</sup> , Fe<sup>3+</sup> , Mn<sup>2+</sup> , Ni<sup>2+</sup> , Zn<sup>2+</sup> , Co<sup>2+</sup> , Ca<sup>2+</sup> , Sr<sup>2+</sup> , Ba<sup>2+</sup> , Mg<sup>2+</sup> ,**DECEMBER****Unit XII: Organic Chemistry -Some Basic Principles and Technique (Contd.)**

Electronic displacements in a covalent bond: inductive effect, electromeric effect, resonance and hyper conjugation. Homolytic and heterolytic fission of a covalent bond: free radicals, carbocations, carbanions, electrophiles and nucleophiles, types of organic reactions.

**Unit XIII: Hydrocarbons****Classification of Hydrocarbons****Aliphatic Hydrocarbons:**

Alkanes- Nomenclature, isomerism, conformation (ethane only), physical properties, chemical reactions including free radical mechanism of halogenation, combustion and pyrolysis.

Alkenes - Nomenclature, structure of double bond (ethene), geometrical isomerism, physical properties, methods of preparation, chemical reactions: addition of hydrogen, halogen, water, hydrogen halides (Markownikov's addition and peroxide effect), ozonolysis, oxidation, mechanism of electrophilic addition. Alkynes - Nomenclature, structure of triple bond (ethyne), physical properties, methods of preparation, chemical reactions: acidic character of alkynes, addition reaction of - hydrogen, halogens, hydrogen halides and water.

Aromatic Hydrocarbons: Introduction, IUPAC nomenclature, benzene: resonance, aromaticity, chemical properties: mechanism of electrophilic substitution. nitration, sulphonation, halogenation, Friedel Craft's alkylation and acylation, directive influence of functional group in monosubstituted benzene. Carcinogenicity and toxicity.

**PRACTICAL****Determination of one anion and one cation in the given salt.****Anions :** CO<sub>3</sub>2<sup>-</sup> , S<sup>2-</sup> , SO<sub>3</sub>2<sup>-</sup> , NO<sub>2</sub>



- ,Cl - , Br - , I - , NO<sub>3</sub>

- , CH<sub>3</sub> COO - , SO<sub>4</sub>

- , PO<sub>4</sub>

3-

Cations : Pb<sup>2+</sup> , Cu<sup>2+</sup> , Al<sup>3+</sup> , Fe<sup>3+</sup> , Mn<sup>2+</sup> , Ni<sup>2+</sup> , Zn<sup>2+</sup> , Co<sup>2+</sup> , Ca<sup>2+</sup> , Sr<sup>2+</sup> , Ba<sup>2+</sup> , Mg<sup>2+</sup> ,

## **JANUARY**

### **Unit IX: Hydrogen**

Position of hydrogen in periodic table, occurrence, isotopes, preparation, properties and uses of hydrogen, hydrides-ionic covalent and interstitial; physical and chemical properties of water, heavy water, hydrogen peroxide -preparation, reactions and structure and use; hydrogen as a fuel.

## **FEBRUARY**

Revision

### **EXAM-WISE SYLLABUS BREAK-UP**

#### **MONDAY TEST 1**

UNIT-1 :- Some Basic Concepts of Chemistry

UNIT-2 :- Structure of Atom

#### **MID-TERM EXAM**

UNIT-1 :- Some Basic Concepts of Chemistry

UNIT-2 :- Structure of Atom

UNIT-3 :- Classification of Elements and Periodicity in Properties

UNIT-4 :- Chemical Bonding and Molecular structure

Unit 10: s -Block Elements

#### **MONDAY TEST-2**

UNIT-5 :- States of Matter: Gases and Liquids

UNIT-8 :- Redox Reactions

#### **MONDAY TEST-3**

UNIT-7 :- Equilibrium

Unit XII: Organic Chemistry -Some Basic Principles and Technique

#### **ANNUAL EXAM**

Complete Syllabus

## **BIOLOGY (044)**

### **General Objectives:**

- **To promote understanding of basic principles of Biology.**
- **To encourage learning of emerging knowledge and its relevance to individual and society.**
- **To promote rational/scientific attitude to issues related to population, environment and development.**
- **To enhance awareness about environmental issues, problems and their appropriate solutions.**
- **To create awareness amongst the learners about diversity in the living organisms and developing respect for other living beings.**
- **To appreciate that the most complex biological phenomena are built on essentially simple processes.**

### **Text books for the session (2017-2018)**

- 1. N.C.E.R.T- Biology textbook for class XI**
- 2. Together with Biology for class XI- Publisher Rachna Sagar**

## MONTH-WISE SYLLABUS BREAK-UP

### APRIL

#### UNIT III-CELL STRUCTURE AND FUNCTION

**Chapter 8- Cell theory and cell as the basic unit of life:** Structure of prokaryotic and eukaryotic cells; Plant cell and animal cell; Cell envelope, cell membrane, cell wall; Cell organelles - structure and function; endo membrane system, endoplasmic reticulum, Golgi bodies, lysosomes, vacuoles; mitochondria, ribosomes, plastids, microbodies; cytoskeleton, cilia, flagella, centrioles (ultrastructure and function); nucleus, nuclear membrane, chromatin, nucleolus.

**Chapter 10-Cell division:** Cell cycle, mitosis, meiosis and their significance.

**Chapter 16-Digestion and absorption:** Alimentary canal and digestive glands, role of digestive enzymes and gastrointestinal hormones; Peristalsis, digestion, absorption and assimilation of proteins, carbohydrates and fats; calorific values of proteins, carbohydrates and fats; egestion; nutritional and digestive disorders - PEM, indigestion, constipation, vomiting, jaundice, diarrhoea.

### MAY

**Chapter 17- Breathing and Exchange of gases:** Respiratory organs in animals (recall only); Respiratory system in humans; mechanism of breathing and its regulation in humans - exchange of gases, transport of gases and regulation of respiration, respiratory volume; disorders related to respiration - asthma, emphysema, occupational respiratory disorders.

**Chapter 18- Body fluids and Circulation:** Composition of blood, blood groups, coagulation of blood; composition of lymph and its function; human circulatory system - Structure of human heart and blood vessels; cardiac cycle, cardiac output, ECG; double circulation; regulation of cardiac activity; disorders of circulatory system - hypertension, coronary artery disease, angina pectoris, heart failure.

#### Practicals

1. Study parts of a compound microscope.
2. Study of distribution of stomata in the upper and lower surface of leaves.
3. Study of mitosis in onion root tips cells and animals cells (grasshopper) from permanent slides.
4. Study of plasmolysis in epidermal peels (e.g. Rhoeo leaves)

### JULY

#### UNIT V - HUMAN PHYSIOLOGY

**Chapter 20- Locomotion and movement:** Types of movement - ciliary, flagellar, muscular; skeletal muscle contractile proteins and muscle contraction; skeletal system and its functions; joints; disorders of muscular and skeletal system - myasthenia gravis, tetany, muscular dystrophy, arthritis, osteoporosis, gout.

#### UNIT III-CELL STRUCTURE AND FUNCTION

**Chapter 9- Biomolecules:** Chemical constituents of living cells: biomolecules, structure and function of proteins, carbohydrates, lipids, nucleic acids, enzymes, types, properties, enzyme action.

#### UNIT II- STRUCTURAL ORGANISATION IN PLANTS AND ANIMALS

**Chapter 5-Morphology of flowering plants:** morphology of different parts of flowering plants: root, stem, leaf, inflorescence, flower, fruit and seed.

### **Practicals**

1. Test for the presence of sugar, starch, proteins and fats. To detect these in suitable plant and animal materials.
2. Study of human skeleton and different types of joints.
3. To study the effect of salivary amylase on starch.
4. Study and describe three locally available common flowering plants, one from each of the families Solanaceae, Fabaceae and Liliaceae including dissection and display of floral whorls and anther and ovary to show number of chambers. Types of root (Tap and adventitious); stem (herbaceous and woody); leaf (arrangement, shape, venation, simple and compound).
5. Study of different modifications in root, stem and leaves.
6. Study and identification of different types of inflorescence (cymose and racemose).

### **PROJECT WORK**

#### **AUGUST**

#### **UNIT IV- PLANT PHYSIOLOGY**

**Chapter 11-Transport in plants;** Movement of water, gases and nutrients; cell to cell transport, Diffusion, facilitated diffusion, active transport; plant-water relations, Imbibition, water potential, osmosis, plasmolysis; long distance transport of water - Absorption, apoplast, symplast, transpiration pull, root pressure and guttation; transpiration, opening and closing of stomata; Uptake and translocation of mineral nutrients - Transport of food, phloem transport, mass flow hypothesis; diffusion of gases.

**Chapter 12 -Mineral nutrition:** Essential minerals, macro- and micronutrients and their role; deficiency symptoms; mineral toxicity; elementary idea of hydroponics as a method to study mineral nutrition; nitrogen metabolism, nitrogen cycle, biological nitrogen fixation.

**Chapter 13-Photosynthesis in higher plants:** Photosynthesis as a mean of autotrophic nutrition; site of photosynthesis, pigments involved in photosynthesis (elementary idea); photochemical and biosynthetic phases of photosynthesis; cyclic and non cyclic photophosphorylation; chemiosmotic hypothesis; photorespiration; C<sub>3</sub> and C<sub>4</sub> pathways; factors affecting photosynthesis.

### **Practicals**

1. Study of osmosis by potato osmometer.
2. To study the rate of respiration in flower buds/leaf tissue and germinating seeds.
3. Study of imbibition in seeds/raisins.

#### **SEPTEMBER**

#### **UNIT I- DIVERSITY IN LIVING WORLD**

**Chapter 1- The Living World:** Biodiversity; Need for classification; three domains of life; taxonomy and systematics; concept of species and taxonomical hierarchy; binomial nomenclature; tools for study of taxonomy ,museums, zoological parks, herbaria, botanical gardens.

## OCTOBER

### UNIT V - HUMAN PHYSIOLOGY

**Chapter 19-Excretory products and their elimination:** Modes of excretion - ammonotelism, ureotelism, uricotelism; human excretory system - structure and function; urine formation, osmoregulation; regulation of kidney function - renin - angiotensin, atrial natriuretic factor, ADH and diabetes insipidus; role of other organs in excretion; disorders - uremia, renal failure, renal calculi, nephritis; dialysis and artificial kidney.

### UNIT IV- PLANT PHYSIOLOGY

**Chapter 14- Respiration:** Exchange of gases; cellular respiration - glycolysis, fermentation (anaerobic), TCA cycle and electron transport system (aerobic); energy relations - number of ATP molecules generated; amphibolic pathways; respiratory quotient.

**Chapter 15-Plant growth and development:** Seed germination; phases of plant growth and plant growth rate; conditions of growth; differentiation, dedifferentiation and redifferentiation; sequence of developmental processes in a plant cell; growth regulators - auxin, gibberellin, cytokinin, ethylene, ABA; seed dormancy; vernalisation; photoperiodism.

#### Practicals

7. To test the presence of urea in urine.
  8. To detect the presence of sugar in urine.
  9. To detect the presence of albumin in urine.
  10. To detect the presence of bile salts in urine.
6. Separation of plant pigments through paper chromatography.

## NOVEMBER

### UNIT V - HUMAN PHYSIOLOGY

**Chapter 21- Neural control and coordination:** Neuron and nerves; Nervous system in humans - central nervous system; peripheral nervous system and visceral nervous system; generation and conduction of nerve impulse; reflex action; sensory perception; sense organs; elementary structure and functions of eye and ear.

### UNIT II- STRUCTURAL ORGANISATION IN PLANTS AND ANIMALS

**Chapter 6-Structural Organization in Flowering plants-** Tissues; anatomy and functions of different parts of flowering plants: root, stem, leaf. Secondary growth in dicot stem and root.

#### Practicals

1. Preparation and study of T.S. of dicot and monocot roots and stems (primary).

## DECEMBER

**Chapter 22- Chemical coordination and Integration:** Endocrine glands and hormones; human endocrine system - hypothalamus, pituitary, pineal, thyroid, parathyroid, adrenal, pancreas, gonads; mechanism of hormone action (elementary Idea); role of hormones as

messengers and regulators, hypo – and hyperactivity and related disorders; dwarfism, acromegaly, cretinism, goiter, exophthalmic goiter, diabetes, Addison's disease.

## **UNIT I- DIVERSITY IN LIVING WORLD**

**Chapter 3- Plant Kingdom:** Salient features and classification of plants into major groups - Algae, Bryophyta, Pteridophyta, Gymnospermae and Angiospermae (three to five salient and distinguishing features and at least two examples of each category); Angiosperms – classification upto class, characteristic features and examples.

**Chapter 2- Biological classification:** Five kingdom classification; Salient features and classification of Monera, Protista and Fungi into major groups: Lichens, Viruses and Viroids.

### **Practicals**

1. Study of tissues and diversity in shapes and sizes of plant and animal cells (palisade cells, guard cells, parenchyma, collenchyma, sclerenchyma, xylem, phloem, squamous epithelium, muscle fibers and mammalian blood smear) through temporary/permanent slides.
2. Study of the specimens/slides/models and identification with reasons Bacteria, Oscillatoria, Spirogyra, Rhizopus, mushroom, yeast, liverwort, moss, fern, pine, one monocotyledonous plant and one dicotyledonous plant and one lichen.

## **JANUARY**

**Chapter 4-Animal Kingdom:** Salient features and classification of animals non chordates up to phyla level and chordates up to class level (three to five salient features and at least two examples of each category).

## **UNIT II- STRUCTURAL ORGANISATION IN PLANTS AND ANIMALS**

**Chapter 7- Animal tissues:** Morphology, anatomy and functions of different systems (digestive, circulatory, respiratory, nervous and reproductive) of an insect (cockroach).

## **FEBRUARY**

### **Revision**

## **TEST-WISE SYLLABUS BREAK-UP**

### **MONDAY TEST I**

#### **UNIT III-CELL STRUCTURE AND FUNCTION**

Chapter 8- Cell theory and Cell as a basic unit of life

Chapter 10- Cell Cycle and Cell division

#### **UNIT V- HUMAN PHYSIOLOGY**

Chapter 16- Digestion and absorption

### **MID-TERM**

#### **UNIT III-CELL STRUCTURE AND FUNCTIONS**

Chapter 8- Cell: The Unit of Life

Chapter 9- Biomolecules

Chapter 10- Cell Cycle and Cell division

#### **UNIT II- STRUCTURAL ORGANISATION IN PLANTS AND ANIMALS**

Chapter 5- Morphology of Flowering Plants

## **UNIT V- HUMAN PHYSIOLOGY**

Chapter 16- Digestion and absorption

Chapter 17- Breathing and exchange of gases

Chapter 18- Body fluids and Circulation

Chapter 20- Locomotion and Movement

## **UNIT IV- PLANT PHYSIOLOGY**

Chapter 11- Transport in Plants

Chapter 12- Mineral Nutrition

Chapter 13-Photosynthesis in Higher Plants

## **MONDAY TEST II**

### **UNIT I- DIVERSITY IN LIVING WORLD**

Chapter 1- The Living World

### **UNIT V - HUMAN PHYSIOLOGY**

Chapter 19- Excretory Products and their elimination

### **UNIT IV- PLANT PHYSIOLOGY**

Chapter 14- Respiration in Plants

## **MONDAY TEST III**

### **UNIT IV- PLANT PHYSIOLOGY**

Chapter 15- Plant Growth and Development

### **UNIT V - HUMAN PHYSIOLOGY**

Chapter 21- Neural Control and Coordination

### **UNIT II- STRUCTURAL ORGANISATION IN PLANTS AND ANIMALS**

Chapter 6- Anatomy of flowering plants

## **ANNUAL EXAM- Full syllabus**

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## **COMPUTER SCIENCE (Code 083)**

### **General Objectives:**

- **To understand basics of computers.**
- **To develop logic for Problem Solving.**
- **To develop problem solving skills and their implementation through Object Oriented Programming using C++.**
- **To understand and implement the concept of Object Oriented Methodology.**
- **To understand the concept of working with Relational Database.**
- **To understand the basic concept of Computing Logic.**
- **To understand the basic concepts of Communication and Networking technologies.**
- **To understand Open Source Software.**

### **Text books for the session (2017-2018)**

1. Computer Science with C++ by Preeti Arora & Pinky Gupta by Sultan Chand Publications
2. Reference Books : Computer Science with C++ by Sumita Arora by Dhanpat Rai Publications

## **APRIL & MAY**

## **UNIT 1: COMPUTER FUNDAMENTALS**

### **CHAPTER 1,2,3,4**

Evolution of computers; Basics of computer and its operation; Functional Components and their interconnections, concept of Booting. Classification of Computers.

**Software concepts:** Types of Software - System Software, Utility Software and Application Software

**System Software:** Operating System, Compiler, Interpreter and Assembler

**Operating System:** Need for Operating System, Functions of Operating System (Processor Management,

Memory Management, File Management and Device Management), Types of Operating System- interactive (GUI based), Time Sharing, Real Time and Distributed, Commonly used operating system: UNIX, LINUX, Windows, Solaris, BOSS (Bharat Operating System Solutions); Mobile OS - Android, Symbian.

**Utility Software:** Anti Virus, File Management tools, Compression tools and Disk Management tools (Disk Cleanup, Disk Defragmenter, Backup).

**Open Source Concepts:** Open Source Software, Freeware, Shareware, Proprietary Software.

**Application Software:** Office Tools - Word Processor, Presentation Tool, Spreadsheet Package, Database Management System; Domain Specific tools - School Management System, Inventory Management System, Payroll System, Financial Accounting, Hotel Management, Reservation System and Weather Forecasting System.

**Number System:** Binary, Octal, Decimal, Hexadecimal and conversion between two different number systems.

**Internal Storage encoding of Characters:** ASCII, ISCII (Indian scripts Standard Code for Information Interchange), and UNICODE (for multilingual computing)

**Microprocessor:** Basic concepts, Clock speed (MHz, GHz), 16 bit, 32 bit, 64 bit processors; 128 bit processors;

Types - CISC Processors (Complex Instruction set computing), RISC Processors (Reduced Instruction set computing), and EPIC (Explicitly parallel Instruction computing).

**Memory Concepts:** Units: Byte, Kilo Byte, Mega Byte, Giga Byte, Tera Byte, Peta Byte, Exa Byte, Zetta Byte, Yotta Byte

**Primary Memory:** Cache, RAM, ROM

**Secondary Memory:** Fixed and Removable storage - Hard Disk Drive, CD/DVD Drive, Pen Drive, Blue Ray Disk.

**Input Output Ports/ Connections:** Serial, Parallel and Universal Serial Bus, PS-2 port, Infrared port, Bluetooth, Firewire.

### **JULY**

### **UNIT – 1 – REVISION**

### **UNIT 3: PROGRAMMING METHODOLOGY**

#### **Chapter 5 : Programming Methodology**

**General Concepts:** Modular Approach, Clarity and Simplicity of Expressions, Use of proper names for Identifiers, Comments, Indentation; Documentation and Program Maintenance; Running and Debugging programs, Syntax Errors, Run-Time Errors, Logical Errors

**Problem solving Methodologies:** Understanding of the problem, solution for the problem, identifying minimum number of inputs required for output, writing code to optimizing execution time and memory storage, step by step solution for the problem, breaking down solution into simple steps (modular approach), identification of arithmetic and logical operations required for solution; Control Structure- conditional control and looping (finite and infinite).

**Chapter 6: Problem Solving:** Introduction to Algorithms/Flowcharts.

### **UNIT 2: INTRODUCTION TO C++**

#### **Chapters 7,8,9**

**Getting Started:** C++ character set, C++ Tokens (Identifiers, Keywords, Constants, Operators, ),

Structure of a C++ Program (include files, main function), Header files - iostream.h, iomanip.h, **cout**, **cin**; use of I/O operators (<<and>>), Use of endl and setw (), Cascading of I/O operators, Error Messages; Use of editor, basic commands of editor, compilation, linking and execution.  
**Data Types, Variables and Constants:** Concept of Data types; Built-in Data types: **char, int, float and double**; Constants: Integer Constants, Character constants - \n, \t, \b), Floating Point Constants, String Constants; Access modifier: const; Variables of built-in-data types, Declaration/Initialization of variables, Assignment statement, Type modifier: **signed, unsigned, long**  
**Operator and Expressions:** Operators: Arithmetic operators (-,+,\*,,/,%), Unary operator (-), Increment (++) and Decrement (--) Operators, Relation operator (>,>=,<=,=,! =), Logical operators (!,&&,||), Conditional operator: <condition>?<if false>; Precedence of Operators; Automatic type conversion in expressions, Type casting; C++ shorthands (+=-, -=, \*=, /=, %=)

## **AUGUST**

### **UNIT 4: PROGRAMMING IN C++**

#### **Chapter 10 :Flow of Control**

##### **Flow of control:**

**Conditional statements: if else, Nested if, switch..case..default**, use of conditional operator, Nested

**switch..case, break** statement (to be used in **switch..case only**); Loops: **while, do - while, for** and Nested loops

#### **Chapter 11: Functions**

##### **Inbuilt Functions,**

##### **Header file**

**Standard input/output functions stdio.h gets ( ), puts ( )**

**Character Functions - ctype.h isalnum ( ), isalpha ( ), islower ( ), isdigit ( ), isupper ( ), tolower ( ), toupper ( )**

**String Function - string.h strcpy ( ), strcat ( ), strcmpi ( ), strrev ( ), strlen ( ), strcmp ( ),strupur ( ), strlwr ( )**

**Mathematical Functions - fabs ( ), pow ( ), sqrt ( ), sin ( ), cos ( ), abs ( )**

**Other Functions stdlib.h randomize ( ), random ( )**

## **SEPTEMBER**

### **UNIT 4: PROGRAMMING IN C++**

#### **Chapter 11: Functions**

##### **Introduction to user-defined function and its requirements.**

Defining a function; function prototype, Invoking/calling a function, passing arguments to function, specifying argument data types, default argument, constant argument, call by value, call by reference, returning values from a function, calling functions with arrays, scope rules of functions and variables local and global variables.

## **OCTOBER**

#### **Chapter 12: Arrays**

**Arrays:** Introduction to Array and its advantages.

**One Dimensional Array :** Declaration/initialization of One-dimensional array, inputting array elements, accessing array elements, manipulation of array elements (sum of elements, product of elements, average of elements, linear search, finding maximum/minimum value) Declaration / Initialization of a String, string manipulations (counting vowels/ consonants/ digits/ special characters, case conversion, reversing a string, reversing each word of a string)

## **NOVEMBER**

#### **Chapter 12: Arrays**

##### **Two-dimensional Array**

Declaration/initialization of a two-dimensional array, inputting array elements accessing array elements, manipulation of array elements (sum of row element, column elements, diagonal elements, finding maximum / minimum values)

**User-defined Data Types:** Introduction to user defined data types.



## **DECEMBER**

### **Chapter 13: Structures**

#### **Structure**

Defining a Structure (Keyword Structure), declaring structure variables, accessing structure elements, passing structure to functions as value and reference argument/parameter, function returning structure array of structure, passing an array of structure as an argument/ a parameter to a function.

Defining a symbol name using **typedef** keyword and defining a macro using **#define** preprocessor directive.

### **Computer Networks(Notes)**

#### **PROJECT WORK**

## **JANUARY**

### **Revision Work**

## **TEST-WISE SYLLABUS BREAK-UP CLASS XI (Computer Science) SUBJECT CODE-083 (2017-2018)**

### **MONDAY TEST 1**

**Chapter 1 : Computer Fundamentals**

**Chapter 2 : Software Concepts**

**Chapter 3: Number System**

**Chapter 4 : Memory Concepts**

#### **Mid Term Examination**

**Chapter 1 : Computer Fundamentals**

**Chapter 2 : Software Concepts**

**Chapter 3: Number System**

**Chapter 4 : Memory Concepts**

**Chapter 5 : Programming Methodology**

**Chapter 6: Algorithm and Flowchart**

**Chapter 7 : Getting Started with C++**

**Chapter 8: Data Handling**

**Chapter 9: Operators & Expressions in C++**

**Chapter 10: Flow of Control**

**Chapter 11: Functions (Built-in)**

### **MONDAY TEST 2**

**Chapter 11: Functions**

**Chapter 12: Arrays (1D)**

### **MONDAY TEST 3**

**Chapter 12: Arrays (2D)**

**Chapter 13: Structures**

#### **Annual Examination**

**Full Syllabus**

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## **MONTH-WISE SYLLABUS BREAK-UP Informatics Practices CODE (065) SESSION (2017-18)**

### **Learning Objectives:**

- To gain working knowledge of a computer system including peripherals
- To understand the application development process.
- To gain programming skills in front-end development
- To gain skills in back-end development: Relational Database Creation and Management.

**Competencies Developed:**

- Sound knowledge of computer system
- Familiarity with application development process using simple IDEs
- Ability to use, develop and debug programs independently.
- Ability to store and retrieve data using an RDBMS.

**Text book for the session (2017-2018)**

Informatics Practices

**Publisher: CBSE**

**CLASS XI (Informatics Practices)  
SESSION (2017-18)**

**APRIL**

**Unit-1 : Hardware Concepts**

- Functional units of computer system
- Input Devices
- Output Devices
- CPU and its components
- Units and types of memory
- Communication Bus and Ports
- Secondary Storage Devices

**Unit-2 : Software Concept & Productivity Tools**

- Types of software
- Need for an Operating System
- System Software
- Application Software
- Developer Tools

**Unit-3 : Information Security and Social Networking**

- Threats to a Computer System
- Antivirus Tools
- Desktop Security
- Network Security
- Cyber Crime and Cyber Police
- Cyber Law of India
- Social Networking

**MAY**

**Unit-4: Getting Started with IDE Programming**

- Introduction to IDE
- Netbeans Interface
- Adding components to form
- Using text field, text area and button components

**JULY**

**Unit-4: Getting Started with IDE Programming**

- Handling the Radio Button Component
- Handling password field
- Creating simple applications

**Unit-5 : Programming Fundamentals**

- Variables and Data types

- Operators
- setVisible(), setEnabled() and setEditable()

## **AUGUST**

### **Unit-6 : Control Structures**

- Selection Statements
- If-else and switch statement
- Relational Operator
- Check Box and its methods
- List box and its methods

## **SEPTEMBER**

### **Unit-6 : Control Structures**

- Unary operators
- Post fix and Prefix
- For loop, while loop and do while loop

### **Unit-7 : Programming Guidelines**

- GUI Application Development Guidelines
- Stages of application development
- Types of errors
- Exceptional Handling

## **OCTOBER**

### **Unit-8 : Introduction to MySQL**

- DBMS and RDBMS
- RDBMS Terminology
- MySQL and its characteristics
- Downloading MySQL

### **Unit-9 : MySQL**

- Create table command
- Keyword, clause, statement
- MySQL Data types
- Categories of SQL Commands
- Retrieving Information with Select Statement

## **NOVEMBER**

### **Unit – 9 : MySQL**

- Retrieving Multiple Columns
- Eliminating Duplicate values, column alias, relational operators, Logical Operators
- Pattern Matching, Order By
- Update and Delete statement

### **Unit – 10 Functions in MySQL**

- Multiple Row Functions

## **DECEMBER**

### **Unit – 10 Functions in MySQL**

- Single row Functions
  - Numeric Functions
  - Character Functions
  - Date Functions

### **Unit – 11 Sample Applications – Case Studies**

- Case Study 1 – Cross n Knot Game
- Case Study 2 – Salary Calculator
- Case Study 3 – Restaurant Billing System

## **JANUARY**

### **Project Work**

Creating GUI based IT solution for any real life application

## **FEBRUARY**

- **Revision**

**TEST-WISE SYLLABUS BREAK-UP**  
**CLASS XI (Informatics Practices)**  
**SUBJECT CODE-065**  
**(2017-2018)**

**MONDAY TEST 1**

Unit-1 : Hardware Concepts  
Unit-2 : Software Concept & Productivity Tools  
Unit-3 : Information Security and Social Networking

**MID TERM EXAM**

Unit-1 : Hardware Concepts  
Unit-2 : Software Concept & Productivity Tools  
Unit-3 : Information Security and Social Networking  
Unit-4: Getting Started with IDE Programming  
Unit-5 : Programming Fundamentals  
Unit-6 : Control Structures(Selection Statements)

**MONDAY TEST 2**

Unit-6 : Control Structures  
Unit-7 : Programming Guidelines

**MONDAY TEST 3**

Unit-8 : Introduction to MySQL  
Unit -9: MySQL (Select Command)

**MONDAY TEST 4**

Unit – 9 : MySQL  
Unit – 10 Functions in MySQL

**FINAL TERM**

**Full syllabus**

## **ECONOMICS (SESSION 2017-18)**

### **OBJECTIVES**

- 1. Understanding of some basic economic concepts and development of economic reasoning which the learners can apply in their day-to-day life as citizens, workers and consumers.**
- 2. Realisation of learners' role in nation building and sensitivity to the economic issues that the nation is facing today.**
- 3. Equipment with basic tools of economics and statistics to analyse economic issues. This is pertinent for even those who may not pursue this course beyond senior secondary stage.**
- 4. Development of understanding that there can be more than one view on any economic issue and necessary skills to argue logically with reasoning.**

### **TEXT BOOKS**

- NCERT : INDIAN ECONOMIC DEVELOPMENT – Textbook for Class XI**
- STATISTICS FOR ECONOMICS  
A-ONE ECONOMICS ELEMENTARY STATISTICS for class XI by  
I.D.MANGLA (GYAN SAGAR PUBLICATIONS)**

### **REFERENCE BOOKS**

- STATISTICS FOR ECONOMICS for class XI  
Author - Sandeep Garg (Dhanpat Rai Publications)**

### **MONTH-WISE SYLLABUS BREAK-UP( CLASS XI)**

#### **APRIL AND MAY**

##### **Unit 1: Introduction**

##### **Chapter No. 2 INTRODUCTION**

**What is Economics? ; Meaning, scope and importance of statistics in Economics**

##### **Unit 2: Collection, Organisation and Presentation of data**

**Chapter No.3 Collection of Primary & Secondary Data Collection of data - sources of data - primary and secondary; how basic data is collected; methods of collecting data; some important sources of secondary data: Census of India and National Sample Survey Organisation.**

#### **JULY**

##### **Indian Economic Development**

##### **Unit 1: Development Experience (1947-90) and Economic Reforms since 1991**

**Ch.1 Indian Economy on the Eve of Independence**

**Ch.4 Poverty**

## **Ch.5 Human Capital Formation in India**

### **Unit 5: Current challenges facing Indian Economy:**

**Poverty- absolute and relative; Main programmes for poverty alleviation: A critical assessment;**

**Human Capital Formation: How people become resource; Role of human capital in economic development; Growth of Education Sector in India**

## **Ch.6 Rural Development**

**Rural development: Key issues - credit and marketing - role of cooperatives; agricultural diversification; alternative farming - organic farming**

## **Statistics**

### **Chapter No.4 Organisation of Data**

**Organisation of Data: Meaning and types of variables; Frequency Distribution.**

## **AUGUST**

### **Presentation of Data: Tabular Presentation**

#### **Chapter No.5 Tabular Presentation**

#### **Chapter No.6 Diagrammatic Presentation**

#### **Chapter No.7 Graphic Presentation**

**Presentation of Data: Diagrammatic Presentation of Data: (i) Geometric forms (bar diagrams and pie diagrams), (ii) Frequency diagrams (histogram, polygon and ogive) and (iii) Arithmetic line graphs (time series graph).**

## **Unit 3: Statistical Tools and Interpretation**

### **Chapter No.8 Measures of Central Tendency**

### **Chapter No.9 Positional Average & Partition values**

#### **Measures of Central Tendency-Arithmetic Mean**

#### **Partition Values –Median, Quartiles, Mode**

**(For all the numerical problems and solutions, the appropriate economic interpretation may be attempted. This means, the students need to solve the problems and provide interpretation for the results derived.)**

**Measures of Central Tendency- mean (simple and weighted), median and mode**

## **INDIAN ECONOMIC DEVELOPMENT**

### **Ch.2 Indian Economy 1950-1990**

#### **Common goals of Five Year Plans.**

**Main features, problems and policies of agriculture (institutional aspects and new agricultural strategy, etc.), industry (industrial licensing, etc.) and foreign trade.**

## **SEPTEMBER**

### **Ch.7 Employment: Growth, Informalisation and Other Issues**

**Employment: Formal and informal, growth and other issues: Problems and policies.**

**Inflation: Problems and Policies**

**REVISION for Mid Term Examination**

## **OCTOBER**



### **Ch.3 Economic Reforms since 1991**

**Need and main features - liberalisation, globalisation and privatisation;**

**An appraisal of LPG policies**

**Chapter No. 11**

#### **Measures of Correlation**

**Correlation - meaning, scatter diagram; Measures of correlation - Karl Pearson's method (two variables ungrouped data) Spearman's rank correlation.**

**NOVEMBER**

#### **Ch.10 Measures of Dispersion (Stats)**

**Measures of Dispersion - absolute dispersion (range, quartile deviation, mean deviation and standard deviation); relative dispersion (coefficient of quartile-deviation, co-efficient of mean deviation, (Coefficient of variation); Lorenz Curve: Meaning and its application.**

#### **Ch.8 Infrastructure**

**Infrastructure: Meaning and Types: Case Studies: Energy and Health:**

**Problems and Policies- A critical assessment**

**DECEMBER**

#### **Ch.12 INDEX NUMBERS**

**Introduction to Index Numbers - meaning, types - wholesale price index, consumer price index and index of industrial production, uses of index numbers; Inflation and index numbers.**

#### **Unit 6: Development Experience of India:**

#### **Ch.10 COMPARATIVE DEVELOPMENT EXPERIENCES OF INDIA AND ITS NEIGHBOURS**

**A comparison with neighbours India and Pakistan, India and China Issues: growth, population, sectoral development and other developmental indicators.**

**JANUARY**

#### **Ch.9 ENVIRONMENT & SUSTAINABLE DEVELOPMENT**

**Sustainable Economic Development: Meaning, Effects of Economic Development on Resources and Environment, including global warming.**

#### **PROJECT WORK Part C: Developing Projects in Economics**

**The students may be encouraged to develop projects, which have primary data, secondary data or both. Case studies of a few organisations / outlets may also be encouraged. Under this the students will do one project each from Part A and Part B. Some of the examples of the projects are as follows (they are not mandatory but suggestive) :(i) A report on demographic structure of your neighbourhood.**

- (ii) Changing consumer awareness amongst households. (iii) Dissemination of price information for growers and its impact on consumers.
- (iv) Study of a cooperative institution: milk cooperatives, marketing cooperatives, etc.
- (v) Case studies on public private partnership, outsourcing and outward Foreign Direct Investment.
- (vi) Global warming.
- (vii) Designing eco-friendly projects applicable in school such as paper and water recycle.

The idea behind introducing this unit is to enable the students to develop the ways and means by which a project can be developed using the skills learned in the course. This includes all the steps involved in designing a project starting from choosing a title, exploring the information relating to the title, collection of primary and secondary data, analysing the data, presentation of the project and using various statistical tools and their interpretation and conclusion.

- REVISION

## **FEBRUARY**

- REVISION

## **TEST-WISE SYLLABUS BREAK-UP**

### **MONDAY TEST 1**

#### **Statistics:**

#### **Chapter No. 2 Introduction**

#### **Chapter No.3 Collection Of Primary & Secondary Data**

#### **Chapter No.4 Organisation of Data**

#### **Indian Economics:**

#### **Ch.1 Indian Economy on the Eve of Independence**

## **MID-TERM EXAMS**

#### **Indian Economics:**

#### **Ch.1 Indian Economy on the Eve of Independence**

#### **Ch.2 Indian Economy 1950-1990**

#### **Ch.6 Rural Development**

#### **Statistics:**

#### **Ch. No. 2 Introduction**

#### **Ch. No.3 Collection Of Primary & Secondary Data**

#### **Ch. No.4 Organisation of Data**

#### **Ch. No.5 Tabular Presentation**

#### **Ch.No.6 Diagrammatic Presentation**

**Ch. No.7 Graphic Presentation**  
**Ch. No.8 Measures of Central Tendency**  
**Ch. No.9 Positional Average &Partition values**

**MONDAY TEST 2**

**Indian Economics**

**Ch.3 Economic Reforms since 1991**

**Ch.4 Poverty**

**Statistics:**

**Ch. No. 11 Measures of Correlation**

**MONDAY TEST 3**

**Indian Economics**

**Ch.8 Infrastructure**

**Ch.5 Human Capital Formation in India**

**Statistics:**

**Ch.10 Measures of Dispersion**

**ANNUAL EXAMINATION**

**Full Syllabus**

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**CLASS XI SESSION 2017-18**

**ACCOUNTANCY**

Objectives:

To familiarize the students with accounting as an information system;  
To acquaint the students with basic concepts of accounting and accounting standards;  
To develop the skills of using accounting equation in processing business transactions;  
To develop an understanding about recording of business transactions and preparation of financial statements;  
To enable the students with accounting for reconstitution and dissolution of partnership firms;  
To enable the students to understand and analyse the financial statements; and  
To familiarize students with the fundamentals of computerized system of accounting.

TEXTBOOK

T S GREWAL'S

DOUBLE ENTRY BOOK KEEPING

SULTAN CHAND EDUCATIONAL PUBLISHERS

REFERENCE BOOK

NECRT - DOUBLE ENTRY BOOK KEEPING

**MONTH-WISE SYLLABUS BREAK-UP**

**APRIL**

## Part A: Financial Accounting - I

### Unit 1: Theoretical Framework - Introduction to Accounting

Accounting- objectives, advantages and limitations, types of accounting information; users of accounting information and their needs.

Basic accounting terms: business transaction, account, capital, drawings, liability (Non – current and current); asset (Non - current; tangible and intangible assets and current assets), receipts (capital and revenue), expenditure (capital, revenue and deferred), expense, income, profits, gains and losses, purchases, purchases returns, sales, sales returns, stock, trade receivables (debtors and bills receivable), trade payables (creditors and bills payable), goods, cost, vouchers, discount - trade and cash.

#### Theory Base of Accounting

Bases of accounting - cash basis and accrual basis.

### Unit 2: Accounting Process and Special Accounting Treatment

Accounting equation: analysis of transactions using accounting equation.

## **MAY**

### Unit 2: Accounting Process and Special Accounting Treatment

Accounting equation: analysis of transactions using accounting equation

#### Recording of Transactions

Rules of debit and credit: for assets, liabilities, capital, revenue and expenses.

Origin of transactions- source documents (invoice, cash memo, pay in slip, cheque), preparation of vouchers - cash (debit and credit) and non cash (transfer).

Books of original entry: format and recording - Journal.

## **JULY**

### Unit 2: Accounting Process and Special Accounting Treatment -Recording of Transactions

Origin of transactions- source documents (invoice, cash memo, pay in slip, cheque), preparation of vouchers - cash (debit and credit) and non cash (transfer).

Books of original entry: format and recording - Journal.

Ledger - format, posting from journal, cash book and other special purpose books, balancing of accounts.

### Unit 1: Theoretical Framework - Theory Base of Accounting

Fundamental accounting assumptions: going concern, consistency, and accrual.

Accounting principles: accounting entity, money measurement, accounting period, full disclosure, materiality, prudence, cost concept, matching concept and dual aspect.

### Unit 2: Accounting Process and Special Accounting Treatment -Recording of Transactions

Accounting Standards and IFRS (International Financial Reporting Standards): Concept and Objectives.

Cash Book: Simple Cash Book, Cash Book with Discount Column and Cash Book with Bank and Discount Columns, Petty Cash Book.

## **AUGUST**

### Unit 2: Accounting Process and Special Accounting Treatment

## Recording of Transactions

Other books: purchases book, sales book, purchases returns book, sales returns book and journal

Trial balance: objectives and preparation

(Scope: Trial Balance with balance method only)

Bank reconciliation statement- calculating bank balance at accounting date: need and preparation. Corrected cash book balance.

## Unit 2: Accounting Process and Special Accounting Treatment

Recording of Transactions - **Depreciation, Provisions and Reserves** Depreciation: concept need and factors affecting depreciation; methods of computation of depreciation: straight line method, written down value method (excluding change in method) Accounting treatment of depreciation: by charging to asset account, by creating provision for depreciation/ accumulated depreciation account, treatment of disposal of asset.

## **SEPTEMBER**

### **REVISION**

## Unit 2: Accounting Process and Special Accounting Treatment

### Recording of Transactions - **Depreciation, Provisions and Reserves**

Depreciation: concept need and factors affecting depreciation; methods of computation of depreciation: straight line method, written down value method (excluding change in method)

Accounting treatment of depreciation: by charging to asset account, by creating provision for depreciation/ accumulated depreciation account, treatment of disposal of asset.

Provisions and reserves: concept, objectives and difference between provisions and reserves; types of reserves- revenue reserve, capital reserve, general reserve and specific reserves.

## **OCTOBER**

## Unit 2: Accounting Process and Special Accounting Treatment

### Recording of Transactions - Depreciation, Provisions and Reserves

Depreciation: concept need and factors affecting depreciation; methods of computation of depreciation: straight line method, written down value method (excluding change in method)

Accounting treatment of depreciation: by charging to asset account, by creating provision for depreciation/ accumulated depreciation account, treatment of disposal of asset.

Provisions and reserves: concept, objectives and difference between provisions and reserves; types of reserves- revenue reserve, capital reserve, general reserve and specific reserves.

### Accounting for Bills of Exchange

Bills of exchange and promissory note: definition, features, parties, specimen and distinction.

Important terms : term of bill, due date, days of grace, date of maturity, discounting of bill, endorsement of bill, bill sent for collection, dishonour of bill, noting of bill , retirement and renewal of a bill.

Accounting treatment of bill transactions.

## PROJECT WORK

## **NOVEMBER**

## Unit 2: Accounting Process and Special Accounting Treatment

### Recording of Transactions - Rectification of Errors

Errors: types-errors of omission, commission, principles, and compensating; their effect on Trial Balance.

Detection and rectification of errors; preparation of suspense account.

### Part B: Financial Accounting - II

#### Unit 3: Financial Statements of Sole Proprietorship: From Complete and Incomplete Records Financial Statements: objective and importance.

Profit and loss account: gross profit, operating profit and net profit.

Balance Sheet: need, grouping, marshalling of assets and liabilities.

Preparation of Trading and Profit and Loss Account and Balance Sheet of sole proprietorship.

## **DECEMBER**

### Part B: Financial Accounting - II

#### Unit 3: Financial Statements of Sole Proprietorship: From Complete and Incomplete Records Financial Statements: objective and importance.

Profit and loss account: gross profit, operating profit and net profit.

Adjustments in preparation of financial statements : with respect to closing stock, outstanding expenses, prepaid expenses, accrued income, income received in advance, depreciation, bad debts, provision for doubtful debts, provision for discount on debtors, manager's commission, abnormal loss, goods taken for personal use and goods distributed as free samples.

Preparation of Trading and Profit and Loss Account and Balance Sheet of sole proprietorship.

#### Unit 4: Financial Statements of Not-for-Profit Organizations

Not-for-profit organizations: concept.

Receipts and Payment account: features.

Income and Expenditure account: features. Preparation of Income and Expenditure account and Balance Sheet from the given Receipts and Payments account with additional information.

Scope:

(i) Adjustments in a question should not exceed 3 or 4 in number and restricted to subscriptions, consumption of consumables, and sale of assets/ old material.

(ii) Entrance/ admission fees and general donations are to be treated as revenue receipts.

(iii) Trading Account of incidental activities is not to be prepared.

## **JANUARY**

### Part B: Financial Accounting – II

#### Unit 3: Financial Statements of Sole Proprietorship: From Complete and Incomplete

Incomplete records: use and limitations. Ascertainment of profit/loss by statement of affairs method.

#### Unit 5: Computers in Accounting

Introduction to Computer and Accounting Information System {AIS}: Introduction to computers ( Elements, Capabilities, Limitations of Computer system),

Introduction to operating software, utility software and application software. Introduction to Accounting Information System (AIS), as a part of MIS  
Automation of Accounting Process. Meaning  
Stages in automation (a) Accounting process in a computerised environment (Comparison between manual accounting process and Computerised accounting process.) (b) Sourcing of accounting Software (Kinds of software: readymade software; customised software and tailor-made software; Generic Considerations before sourcing accounting software)(c) Creation of Account groups and hierarchy ( d) Generation of reports - Trial balance, Profit and Loss account and Balance Sheet.

Scope:

The scope of the unit is to understand accounting as an information system for the generation of accounting information and preparation of accounting reports.

It is presumed that the working knowledge of Tally software will be given to the students for the generation of accounting software.

REVISION

FEBRUARY - REVISION

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## **BUSINESS STUDIES CLASS XI (2017-2018)**

### **OBJECTIVES**

- To develop students with an understanding of the processes of business and its environment.
- To acquaint students with the dynamic nature and inter-dependent aspects of business.
- To develop an interest in the theory and practice of business, trade and industry.
- To familiarise students with theoretical foundations of the process of organising and managing the operations of a business firm.
- To help students appreciate the economic and social significance of business activity and the social cost and benefits arising there from.
- To acquaint students with the practice of managing the operations and resources of business.
- To enable students to act more effectively and responsibly as consumers, employers, employees and citizens.
- To develop a business attitude and skills in students.
- To inculcate appropriate attitude and develop skills among students to pursue higher education, world of work including self employment.

### **TEXT BOOK**

- NCERT : Business Studies – Textbook for Class XI

### **REFERENCE BOOK**

- Business Studies - A textbook for Class XI  
Author - SubhashDey (Geeta Publishing House)

## **MONTH-WISE SYLLABUS BREAK-UP**

### **APRIL**

#### **NATURE AND PURPOSE OF BUSINESS**

Concept and characteristics of business,

Business, profession and employment - Meaning and their distinctive features

Objectives of business - Economic and social, role of profit in business

Classification of business activities: Industry and Commerce  
Industry - types: primary, secondary, tertiary - Meaning and sub types  
Commerce - trade and auxiliaries to trade: banking, insurance, transportation, warehousing, communication, and advertising  
Business risks - Meaning, nature and causes.

### **SMALL BUSINESS**

Small scale enterprise as defined by MSMED Act 2006  
Role of small business in India with special reference to rural areas  
Government schemes and agencies for small scale industries (NSIC and DIC)

### **MAY**

#### **INTERNAL TRADE**

Services rendered by a wholesaler and a retailer  
Types of retail trade - Itinerant and small scale fixed shops  
Large scale retailers - Departmental stores, chain stores, mail order business  
Concept of automatic vending machine  
Chambers of Commerce and Industry: Basic functions

### **JULY**

#### **REVISION OF SMALL BUSINESS & INTERNAL TRADE**

#### **INTERNAL TRADE**

Main documents used in internal trade and Terms of Trade.

#### **FORMS OF BUSINESS ORGANISATION**

Sole Proprietorship- meaning, features, merits and limitations  
JHFB – meaning and features  
Partnership- features, types, merits and limitations of partnership, registration of a partnership firm, partnership deed, type of partners and types of partnerships  
Cooperative society: meaning, features, merits and limitations, types  
Company: private and public company -features, merits and limitations  
Formation of a company- four stages, important documents  
Starting a business - basic factors

### **AUGUST**

#### **BUSINESS SERVICES**

Postal services: mail (UPC, registered post, parcel, speed post and courier services) Banking: Types of bank accounts

Banking: Banking services, e- banking

Insurance: principles, concept of life, health, fire and marine insurance.

#### **EMERGING MODES OF BUSINESS**

e-business - scope and benefits, resources required for successful e-business implementation, online transactions, payment mechanism, security and safety of business transactions  
Smart cards and ATM's meaning and utility.

### **SEPTEMBER**

#### **Revision**

#### **EMERGING MODES OF BUSINESS**

Outsourcing

#### **PROJECT**



## **OCTOBER**

### **SOURCES OF BUSINESS FINANCE**

Concept of business finance

Types of finance, sources of finance-equity and preference shares, debentures, retained earnings

### **FINANCIAL MANAGEMENT**

Financial decisions- Investment, Financing and Dividend decision

Financial planning, Capital structure

Fixed and Working capital

## **NOVEMBER**

### **PRIVATE PUBLIC AND GLOBAL ENTERPRISES**

Private sector and public sector enterprises

Forms of public sector enterprises: Departmental Undertakings, Statutory Corporation and Government Company

Changing role of public sector enterprises

Global enterprises, Joint ventures, Public Private Partnership

### **SOCIAL RESPONSIBILITY OF BUSINESS AND BUSINESS ETHICS**

Concept of social responsibility

Case for social responsibility

Responsibility towards owners, investors, consumers, employees, government and community

Environment protection and business

## **DECEMBER**

### **SOCIAL RESPONSIBILITY OF BUSINESS AND BUSINESS ETHICS**

Business ethics- concept and elements

### **INTERNATIONAL BUSINESS**

Meaning, difference between internal trade and external trade, characteristics, problems and advantages of international trade

Export Trade

Import Trade

World Trade Organization (WTO) : meaning and objectives

## **JANUARY**

- PROJECT
- Revision

## **FEBRUARY**

- Revision

### **TEST-WISE SYLLABUS BREAK-UP**

#### **MONDAY TEST 1**

- Nature and purpose of Business

#### **MID-TERM EXAMS**

- Nature and purpose of Business
- Forms of Business Organisation
- Business Services
- Small Business
- Internal Trade

#### **MONDAY TEST 2**

- Emerging modes of Business
- Forms of Business Organisation(stages & documents)

### **MONDAY TEST 3**

Sources of Business Finance  
Financial Management

### **ANNUAL EXAMINATION**

- Full Syllabus

## **POLITICAL SCIENCE (Code No. 028) (2017-18) CURRICULUM**

**Rationale -:** At the senior secondary level students who opt Political Science are given an opportunity to get introduced to the diverse concerns of a Political Scientist. At this level there is a need to enable students to engage with political processes that surround them and provide them with an understanding of the historical context that has shaped the present. The different courses introduce the students to the various streams of the discipline of Political Science: Political Theory, Indian Politics and International Politics. Concerns of the other two streams - Comparative Politics and Public Administration- are accommodated at different places in these courses. In introducing these streams, special care has been taken not to burden the students with the current jargon of the discipline. The basic idea here is to lay the foundations for a serious engagement with the discipline at the under graduation stage.

### **Objectives: Indian Constitution at Work**

Enable students to understand the historical processes and the circumstances in which the Constitution was drafted.

Provide opportunity for students to become familiar with the diverse visions that guided the makers of the Indian Constitution.

Enable students to identify certain key features of the Constitution and compare these to other constitutions in the world. □ Analyse the ways in which the provisions of the Constitution have worked in real political life.

**Political Theory :** Develop the skills for logical reasoning and abstraction. □ Inculcate attention to and respect for viewpoints other than one's own.

Introduce students to the different political thinkers in relation to a concept and in everyday social life.

Enable students to meaningfully participate in and develop internal concerns of the political life that surrounds them. □ Encourage the students to analyse any unexamined prejudices that one may have inherited.

**Contemporary World Politics :** Enable the students to expand their horizons beyond India and make sense of the political map of contemporary world.

Familiarise the students with some of the key political events and processes in the post cold war era.

Equip students to be conscious of the way in which global events and processes shape our everyday lives.

Strengthen their capacity for political analysis by thinking of contemporary developments in a historical perspective.

Politics in India after Independence : Enable students to become familiar with some of the key political events and figures in the post- independence period.

Develop skills of political analysis through an understanding of events and processes of recent history.

Develop their capacity to link macro processes with micro situations and their own life.

Encourage the students to take a historical perspective of making sense of contemporary India.

## **COURSE CONTENT**

Part A: Indian Constitution at Work

1. Constitution Why and How and Philosophy of the Constitution : Why and How, The making of the Constitution, the Constituent Assembly, Procedural achievements and Philosophy of the Constitution. (APRIL-MAY)
2. Rights in the Indian Constitution : The importance of Rights, Fundamental Rights in the Indian Constitution, Directive Principles of State Policy, Relationship between Fundamental Rights and Directive Principles (JULY)

### **I ST MONTHLY TEST—Chapter 1 and 2**

3. Election and Representation : Elections and Democracy, Election System in India, Reservation of Constituencies, Free and Fair Elections, Electoral Reforms (JULY)
4. Legislature : Why do we need a Parliament? Two Houses of Parliament. Functions and Power of the Parliament, Legislative functions, control over Executive. Parliamentary committees. Self-regulation. (JULY)
5. Executive: What is an Executive? Different Types of Executive. Parliamentary Executive in India, Prime Minister and Council of Ministers. Permanent Executive: Bureaucracy.(AUGUST)
6. Judiciary : Why do we need an Independent Judiciary? Structure of the Judiciary, Judicial Activism, Judiciary and Rights, Judiciary and Parliament. (AUGUST)
7. Federalism: What is Federalism? Federalism in the Indian Constitution, Federalism with a strong Central Government, conflicts in India's federal system, Special Provisions.(AUGUST)
8. Local Governments: Why do we need Local Governments? Growth of Local Government in India, 73rd and 74th Amendments, implementation of 73rd and 74th Amendments.(AUGUST)
9. Constitution as a Living Document : Are Constitutions static? The procedure to amend the Constitution. Why have there been so many amendments? Basic Structure and Evolution of the Constitution. Constitution as a Living Document. (SEPTEMBER)

### **MID-TERM EXAMS BOOK-1 Chapters 1 to 9**

Part B: Political Theory

10. Political Theory: An Introduction : What is Politics? What do we study in Political Theory? Putting Political Theory to practice. Why should we study Political Theory?(OCTOBER)
11. Freedom : The Ideal of Freedom. What is Freedom? Why do we need constraints? Harm principle. Negative and Positive Liberty.(OCTOBER)

### **IIND MONTHLY TEST –Chapters 10 and 11**

12. Equality : Significance of Equality. What is Equality? Various dimensions of Equality. How can we promote Equality? (NOVEMBER)

13. Social Justice : What is Justice? Just Distribution. Justice as fairness. Pursuing Social Justice.(NOVEMBER)

14. Rights : What are Rights? Where do Rights come from? Legal Rights and the State. Kinds of Rights. Rights and Responsibilities.(NOVEMBER)

### **IIIRD MONDAY TEST- Chapters 12,13,14**

15. Citizenship : What is citizenship? Citizen and Nation, Universal Citizenship, Global Citizenship (DECEMBER)

16. Nationalism : Nations and Nationalism, National Self-determination, Nationalism and Pluralism (DECEMBER)

17. Secularism : What is Secularism? What is Secular State? The Western and the Indian approaches to Secularism. Criticisms and Rationale of Indian Secularism. (DECEMBER)

18. Peace : What is Peace? Can violence ever promote peace? Peace and the State. Different Approaches to the pursuit of peace. Contemporary challenges to peace. (JANUARY)

19. Development : What is development? Dominant, development Model and alternative conceptions of development. (JANUARY)

### **ANNUAL EXAMINATION**

#### **Full syllabus Part A and Part B**

#### **Prescribed Books:**

1. Indian Constitution at work, Class XI, Published by NCERT
2. Political Theory, Class XI, Published by NCERT

#### TEST-WISE SYLLABUS BREAK-UP

#### MID TERM EXAM

Unit I. Changing Trends and Career in Physical Education

Unit II. Olympic Movement

Unit III. Physical Fitness, Wellness and Lifestyle

Unit IV. Physical education and sports for differently abled

Unit V. Yoga

Unit VI. Physical activity and leadership training

#### ANNUAL EXAM

#### FULL SYLLABUS

#### Practical

01. Physical Fitness (AAHPER)

02. Skill of any one individual game of students choice

03. Viva

04. Record File