****

**SYLLABUS 2022-2023**

**English Core(Code301)**

**CLASS XII**

**Question Paper Design**

**Max Marks: 80 +20=100 TIME:3Hrs.**

|  |  |
| --- | --- |
| **Typology** | **Marks** |
| Reading | 20 |
| Advanced Writing Skills | 20 |
| Literature | 40 |
| **Total** | **80** |
| Assessment of Speaking & Listening Skills | 10 |
| Project Work | 10 |
| **Grand total** | **100** |

**Term I**

**April-May**

**Flamingo:** The Last Lesson

Lost Spring

Deep Water

**Poem:** My Mother at Sixty six

**Vistas:** The Third Level

**Writing:** Notices, Formal letter –Making Enquiry, Placing order, complain Letter

**July**

**Flamingo:**  The Rattrap

**Poem:** Keeping Quiet

**Vistas:** The Tiger King

**Writing:**  Article, Invitations and Replies

**Reading:** Unseen Comprehension

**August - September**

**Flamingo:** Indigo

Poets and Pancakes

**Poem:** A Thing of Beauty

**Vistas:** Journey to the End of the Earth, The Enemy

**Writing:** Letter to the Editor, Job application, Article writing, Article Writing

**Reading:** Unseen Comprehension

**ASSESSMENT OF SPEAKING & LISTENING SKILLS**

**October**

**Flamingo:** The Interview

**Poem:** A Roadside Stand

**Vistas:** On the Face of it

**Writing:** Report Writing, Invitations and Replies, letter to Editor

**November**

**Flamingo:** Going Places

**Vistas:** Memories of Childhood

**December**

**Flamingo:** Aunt Jennifer’s Tigers

**Writing:** Letter to the Editor, Job application, Article Writing

**Periodic Test 1**

**Flamingo:** The Last Lesson

Lost Spring

Deep Water

**Poem:** My Mother at Sixty six

**Vistas:** The Third Level

**Writing:** Notices, Formal letter –Making Enquiry, Placing order, complain Letter

**Periodic Test 2**

**Flamingo:**  The Rattrap

**Poem:** Keeping Quiet

**Vistas:** The Tiger King

**Writing:**  Article, Invitations and Replies

**Reading:** Unseen Comprehension

**Periodic Test 3**

**Flamingo:** The Interview

**Poem:** A Roadside Stand

**Vistas:** On the Face of it

**Writing:** Report Writing, Invitations and Replies, letter to Editor

**Half Yearly Examination (Month of September)**

**Pre-board examination**

Complete syllabus prescribed by CBSE

**Assessment of Project Work**

***PHYSICS* (042)**

|  |  |  |
| --- | --- | --- |
| **Unit** | **Unit’s detail (name of chapter)** | **Marks** |
| **Unit–I** | **Electrostatics** | 16 |
|  | Chapter–1: Electric Charges and Fields |
|  | Chapter–2: Electrostatic Potential and Capacitance |
| **Unit-II** | **Current Electricity** |
|  | Chapter–3: Current Electricity |
| **Unit-III** | **Magnetic Effects of Current and Magnetism** | 17 |
|  | Chapter–4: Moving Charges and Magnetism |
|  | Chapter–5: Magnetism and Matter |
| **Unit-IV** | **Electromagnetic Induction and Alternating Currents** |
|  | Chapter–6: Electromagnetic Induction |
|  | Chapter–7: Alternating Current |
| **Unit–V** | **Electromagnetic Waves** | 18 |
|  | Chapter–8: Electromagnetic Waves |
| **Unit–VI** | **Optics** |
|  | Chapter–9: Ray Optics and Optical Instruments |
|  | Chapter–10: Wave Optics |
| **Unit–VII** | **Dual Nature of Radiation and Matter** | 12 |
|  | Chapter–11: Dual Nature of Radiation and Matter |
| **Unit-VIII** | **Atoms and Nuclei** |
|  | Chapter–12: Atoms |
|  | Chapter–13: Nuclei |

|  |  |  |
| --- | --- | --- |
| **Unit–IX** | **Electronic Devices** | 7 |
|  | Chapter–14: Semiconductor Electronics: Materials, Devices and Simple Circuits |
| **Total** | | **70** |

**Unit I: (April & May)**

**Chapter–1: Electric Charges and Fields Electric charges,**

Conservation of charge, Coulomb's law-force between two point charges, forces between multiple charges; superposition principle and continuous charge distribution. Electric field, electric field due to a point charge, electric field lines, electric dipole, electric field due to a dipole, torque on a dipole in uniform electric field. Electric flux, statement of Gauss's theorem and its applications to find field due to infinitely long straight wire, uniformly charged infinite plane sheet and uniformly charged thin spherical shell (field inside and outside).

**Chapter–2: Electrostatic Potential and Capacitance**

Electric potential, potential difference, electric potential due to a point charge, a dipole and system of charges; equipotential surfaces, electrical potential energy of a system of two-point charges and of electric dipole in an electrostatic field. Conductors and insulators, free charges and bound charges inside a conductor. Dielectrics and electric polarization, capacitors and capacitance, combination of capacitors in series and in parallel, capacitance of a parallel plate capacitor with and without dielectric medium between the plates, energy stored in a capacitor (no derivation, formulae only)

**Unit II:** **Current Electricity (July)**

**Chapter–3: Current Electricity**

Electric current, flow of electric charges in a metallic conductor, drift velocity, mobility and their relation with electric current; Ohm's law, V-I characteristics (linear and non-linear), electrical energy and power, electrical resistivity and conductivity, temperature dependence of resistance, Internal resistance of a cell, potential difference and emf of a cell, combination of cells in series and in parallel, Kirchhoff's rules, Wheatstone bridge.

**Unit III**: **Magnetic Effects of Current and Magnetism**

**Chapter–4: Moving Charges and Magnetism**

Concept of magnetic field, Oersted's experiment. Biot - Savart law and its application to current carrying circular loop. Ampere's law and its applications to infinitely long straight wire. Straight solenoid (only qualitative treatment), force on a moving charge in uniform magnetic and electric fields. Force on a current-carrying conductor in a uniform magnetic field, force between two parallel current-carrying conductors-definition of ampere, torque experienced by a current loop in uniform magnetic field; Current loop as a magnetic dipole and its magnetic dipole moment, moving coil galvanometer its current sensitivity and conversion to ammeter and voltmeter.

**Chapter–5: Magnetism and Matter (August & September)**

Bar magnet, bar magnet as an equivalent solenoid (qualitative treatment only), magnetic field intensity due to a magnetic dipole (bar magnet) along its axis and perpendicular to its axis (qualitative treatment only), torque on a magnetic dipole (bar magnet) in a uniform magnetic field (qualitative treatment only), magnetic field lines. Magnetic properties of materials- Para-, dia- and ferro - magnetic substances with examples, Magnetization of materials, effect of temperature on magnetic properties.

**Unit IV:**

**Electromagnetic Induction and Alternating Currents**

**Chapter–6: Electromagnetic Induction**

Electromagnetic induction; Faraday's laws, induced EMF and current; Lenz's Law, Self and mutual induction.

**Chapter–7: Alternating Current**

Alternating currents, peak and RMS value of alternating current/voltage; reactance and impedance; LCR series circuit (phasors only), resonance, power in AC circuits, power factor, wattless current. AC generator, Transformer.

**Unit V: Electromagnetic waves**

**Chapter–8: Electromagnetic Waves**

Basic idea of displacement current, Electromagnetic waves, their characteristics, their transverse nature (qualitative idea only).

Electromagnetic spectrum (radio waves, microwaves, infrared, visible, ultraviolet, X-rays, gamma rays) including elementary facts about their uses.

**Unit VI: Optics**

**Chapter–9: Ray Optics and Optical Instruments**

Ray Optics: Reflection of light, spherical mirrors, mirror formula, refraction of light, total internal reflection and optical fibers, refraction at spherical surfaces, lenses, thin lens formula, lens maker’s formula, magnification, power of a lens, combination of thin lenses in contact, refraction of light through a prism.

Optical instruments: Microscopes and astronomical telescopes (reflecting and refracting) and their magnifying powers.

**Chapter–10: Wave Optics**

Wave optics: Wave front and Huygen’s principle, reflection and refraction of plane wave at a plane surface using wave fronts. Proof of laws of reflection and refraction using Huygen’s principle. Interference, Young's double slit experiment and expression for fringe width (No derivation final expression only), coherent sources and sustained interference of light, diffraction due to a single slit, width of central maxima (qualitative treatment only).

**Unit VII: Dual Nature of Radiation and Matter (October & November)**

**Chapter–11: Dual Nature of Radiation and Matter**

Dual nature of radiation, Photoelectric effect, Hertz and Lenard's

observations; Einstein's photoelectric equation-particle nature of light.

Experimental study of photoelectric effect

Matter waves-wave nature of particles, de-Broglie relation.

**Unit VIII: Atoms and Nuclei**

**Chapter–12: Atoms**

Alpha-particle scattering experiment; Rutherford's model of atom; Bohr model of hydrogen atom, Expression for radius of nth possible orbit, velocity and energy of electron in his orbit, of hydrogen line spectra (qualitative treatment only).

**Chapter–13: Nuclei**

Composition and size of nucleus, nuclear force

Mass-energy relation, mass defect; binding energy per nucleon and its variation with mass number; nuclear fission, nuclear fusion.

**Unit IX: Electronic Devices (December)**

**Chapter–14: Semiconductor Electronics: Materials, Devices and Simple Circuits**

Energy bands in conductors, semiconductors and insulators (qualitative ideas only) Intrinsic and extrinsic semiconductors- p and n type, p-n junction

Semiconductor diode - I-V characteristics in forward and reverse bias, application of junction diode -diode as a rectifier.

**Periodic Test -1 (July)**

**Unit I Electric Charges and Fields**

**Electrostatic Potential and Capacitance**

**Mid Term Examination (September) – 2022**

**Unit I Electric Charges and Fields**

**Electrostatic Potential and Capacitance**

**Unit II Current Electricity**

**Unit III Magnetic Effects of current and Magnetism**

**Unit IV Electromagnetic Induction and Alternating**

**Periodic Test- 2 (December)**

**Unit V Electromagnetic Waves**

**Unit VI Ray Optics, Wave Optics and Optical Instruments**

***Pre Board Examination (2022 -23)***

*Complete syllabus*

*including NCERT exemplar problems’*

**List of Practical for academic session 2022-2023**

**General Instructions:**

\***Every one has to perform 8 practical from the both sections A and B (with minimum of 4 from one section )**

**\*A record of at least 6 activities to be prepared by all the students. (Activities will be demonstrated in extra classes)**

**\* Report of one investigatory project to be completed by every individual during the academic session.**

**PRACTICAL SECTION –A**

1. To determine resistivity of two / three wires by plotting a graph for potential difference versus current.

2. To find resistance of a given wire / standard resistor using metre bridge.

3. To verify the laws of combination (series) of resistances using a metre bridge.

**OR**

To verify the laws of combination (parallel) of resistances using a metre

bridge.

4. To determine resistance of a galvanometer by half-deflection method and to

find its figure of merit.

**PRACTICAL SECTION –B**

1. To find the focal length of a convex mirror, using a convex lens.

2. To find the focal length of a concave lens, using a convex lens

3. To find the focal length of convex lens by plotting graph between u and v or 1/u and 1/v.

4. To determine angle of minimum deviation for a given prism by plotting graph between the angle of incidence and angle of deviation,

**Activities ( SECTION–A & B)**

1. To assemble a household circuit comprising three bulbs, three (on/off) switches, a fuse and a power source.

2. To assemble the components of a given electrical circuit.

3. To identify a diode, an LED, a resistor and a capacitor from a mixed collection of such items.

4. To study effect of intensity of light (by varying distance of the source) on an LDR.

5. To observe refraction and lateral deviation of a beam of light incident obliquely on a glass slab.

6. To study the nature and size of the image formed by a (i) convex lens, or (ii) concave mirror, on a screen by using a candle and a screen (for different distances of the candle from the lens/mirror).

# CHEMISTRY (043)

# Theory: 70 marks Time Allowed: 3 hrs. Practical: 30 marks

**EVALUATION SCHEME**

|  |  |  |
| --- | --- | --- |
| **S.No.** | **Title** | **Marks** |
| **1** | Solutions | 7 |
| **2** | Electrochemistry | 9 |
| **3** | Chemical Kinetics | 7 |
| **4** | d -and f -Block Elements | 7 |
| **5** | Coordination Compounds | 7 |
| **6** | Haloalkanes and Haloarenes | 6 |
| **7** | Alcohols, Phenols and Ethers | 6 |
| **8** | Aldehydes, Ketones and Carboxylic Acids | 8 |
| **9** | Amines | 6 |
| **10** | Biomolecules | 7 |
|  | **Total** | **70** |

### APRIL – MAY

**UNIT 1 SOLUTION**

Types of solutions, expression of concentration of solutions of solids in liquids, solubility of gases in liquids, solid solutions, Raoult's law, colligative properties - relative lowering of vapour pressure, elevation of boiling point, depression of freezing point, osmotic pressure,determination of molecular masses using colligative properties, abnormal molecular mass,Van't Hoff factor.

### UNIT 2 ELECTROCHEMISTRY

Redox reactions, EMF of a cell, standard electrode potential, Nernst equation and its application to chemical cells, Relation between Gibbs energy change and EMF of a cell, conductance in electrolytic solutions, specific and molar conductivity, variations of conductivity with concentration, Kohlrausch's Law, electrolysis and law of electrolysis (elementary idea), dry cell-electrolytic cells and Galvanic cells, lead accumulator, fuel cells, corrosion.

### UNIT 6 HALOALKANE AND HALOARENS

**Haloalkanes:** Nomenclature, nature of C–X bond, physical and chemical properties, optical rotation mechanism of substitution reactions.

**Haloarenes:** Nature of C–X bond, substitution reactions (Directive influence of halogen in monosubstituted compounds only). Uses and environmental effects of - dichloromethane, trichloromethane, tetrachloromethane, iodoform, freons, DDT.

### JULY

**UNIT 3 CHEMICAL KINETICS**

Rate of a reaction (Average and instantaneous), factors affecting rate of reaction: concentration, temperature, catalyst; order and molecularity of a reaction, rate law and specific rate constant, integrated rate equations and half-life (only for zero and first order reactions), concept of collision theory (elementary idea, no mathematical treatment), activation energy, Arrhenius equation.

### UNIT 8 ALDEHYDES, KETONES AND CARBOXYLIC ACID

**Aldehydes and Ketones:** Nomenclature, nature of carbonyl group, methods of preparation, physical and chemical properties, mechanism of nucleophilic addition, reactivity of alpha hydrogen in aldehydes, uses.

**Carboxylic Acids:** Nomenclature, acidic nature, methods of preparation, physical and chemical properties; uses.

### AUGUST - SEPTEMBER

**UNIT 7 ALCHOLS, PHENOLS AND ETHERS**

**Alcohols:** Nomenclature, methods of preparation, physical and chemical properties (of primary alcohols only), identification of primary, secondary and tertiary alcohols, mechanism of dehydration, uses with special reference to methanol and ethanol.

**Phenols:** Nomenclature, methods of preparation, physical and chemical properties, acidicnature of phenol, electrophilic substitution reactions, uses of phenols.

**Ethers:** Nomenclature, methods of preparation, physical and chemical properties, uses.

### OCTOBER - NOVEMBER

**UNIT 4 D & F BLOCK ELEMENTS**

General introduction, electronic configuration, occurrence and characteristics of transition metals, general trends in properties of the first-row transition metals – metallic character, ionization enthalpy, oxidation states, ionic radii, colour, catalytic property, magnetic properties, interstitial compounds, alloy formation, preparation and properties of K2Cr2O7 and KMnO4.

### Lanthanoids –

Electronic configuration, oxidation states, chemical reactivity and lanthanoid contraction and its consequences.

**Actinoids -** Electronic configuration, oxidation states and comparison with lanthanoids.

### UNIT 5 COORDINATION CHEMISTRY

Coordination compounds - Introduction, ligands, coordination number, colour, magnetic properties and shapes, IUPAC nomenclature of mononuclear coordination compounds. Bonding, Werner's theory, VBT, and CFT; structure and stereoisomerism, the importance of coordination compounds (in qualitative analysis, extraction of metals and biological system).

### UNIT 9 AMINES

**Amines:** Nomenclature, classification, structure, methods of preparation, physical and chemical properties, uses, identification of primary, secondary and tertiary amines.

**Diazonium salts:** Preparation, chemical reactions and importance in synthetic organicchemistry.

### DECEMBER

**UNIT 10 BIOMOLECULES**

**Carbohydrates -** Classification (aldoses and ketoses), monosaccharides (glucose and fructose), D-L configuration oligosaccharides (sucrose, lactose, maltose), polysaccharides (starch, cellulose, glycogen); Importance of carbohydrates.

**Proteins -**Elementary idea of - amino acids, peptide bond, polypeptides, proteins, structure of proteins - primary, secondary, tertiary structure and quaternary structures (qualitative idea only), denaturation of proteins; enzymes. Hormones - Elementary idea excluding structure.

**Vitamins -** Classification and functions.

**Nucleic Acids:** DNA and RNA

### JANUARY

**REVISION**

**ASSESSMENT**

**PERIODIC 1 (JULY)**

UNIT 1 : SOLUTION

UNIT 6 : HALOALKANES AND HALOARENES

## PERIODIC 2 (AUGUST)

UNIT 7 : ALCHOLS, PHENOLS AND ETHERS UNIT 2 : ELECTROCHEMISTRY

UNIT 8 : ALDEHYDES, KETONES AND CARBOXYLIC ACID

## MID TERM EXAMINATION(SEPTEMBER)

UNIT 1 : SOLUTION

UNIT 2 : ELECTROCHEMISTRY UNIT 3 : CHEMICAL KINETICS

UNIT 6 : HALOALKANES AND HALOARENES UNIT 7 : ALCHOLS, PHENOLS AND ETHERS

UNIT 8 : ALDEHYDES, KETONES AND CARBOXYLIC ACID

## PERIODIC 3 (DECEMBER)

UNIT 3 : CHEMICAL KINETICS

UNIT 5 : COORDINATION CHEMISTRY

## PRE BOARD EXAMINATION

COMPLETE SYLLABUS AS PER CBSE

# PRACTICALS

|  |  |
| --- | --- |
| **Evaluation Scheme for Examination** | **Marks** |
| Volumetric Analysis | 08 |
| Salt Analysis | 08 |
| Content-Based Experiment | 06 |
| Project Work | 04 |
| Class record and Viva | 04 |
| **Total** | **30** |

## PRACTICAL SYLLABUS

### Surface Chemistry

* 1. Preparation of one lyophilic and one lyophobic sol Lyophilic sol - starch, egg albumin and gum

Lyophobic sol - aluminium hydroxide, ferric hydroxide, arsenous sulphide.

* 1. Dialysis of sol-prepared in (a) above.
  2. Study of the role of emulsifying agents in stabilizing the emulsion of different oils.

### Chemical Kinetics

* 1. Effect of concentration and temperature on the rate of reaction between Sodium Thiosulphate and Hydrochloric acid.
  2. Study of reaction rates of any one of the following:

1. Reaction of Iodide ion with Hydrogen Peroxide at room temperature usingdifferent concentrations of Iodide ions.
2. Reaction between Potassium Iodate, (KIO3) and Sodium Sulphite: (Na2SO3)using starch solution as an indicator (clock reaction).

### Thermochemistry

Any one of the following experiments

* 1. Enthalpy of dissolution of Copper Sulphate or Potassium Nitrate.
  2. Enthalpy of neutralization of strong acid (HCI) and strong base (NaOH).
  3. Determination of enthaply change during interaction (Hydrogen bond formation) between Acetone and Chloroform.

### Electrochemistry

Variation of cell potential in Zn/Zn2+|| Cu2+/Cu with change in concentration of electrolytes (CuSO4 or ZnSO4) at room temperature.

### Chromatography

* 1. Separation of pigments from extracts of leaves and flowers by paper chromatography and determination of Rf values.
  2. Separation of constituents present in an inorganic mixture containing two cations only (constituents having large difference in Rf values to be provided).

### Preparation of Inorganic Compounds

Preparation of double salt of Ferrous Ammonium Sulphate or Potash Alum. Preparation of Potassium Ferric Oxalate.

### Preparation of Organic Compounds

Preparation of any one of the following compounds

i) Acetanilide ii) Di -benzalAcetone iii) p-Nitroacetanilide iv) Aniline yellow or 2 -Naphthol Anilinedye.

### Tests for the functional groups present in organic compounds:

Unsaturation, alcoholic, phenolic, aldehydic, ketonic, carboxylic and amino (Primary) groups.

### Characteristic tests of carbohydrates, fats and proteins in pure samples and their detection in given foodstuffs.

1. **Determination of concentration/ molarity of KMnO4 solution by titrating it against a standard solution of:**
   1. Oxalic acid,
   2. Ferrous Ammonium Sulphate

### Qualitative analysis

Determination of one anion and one cation in a given salt

### Cation:

Pb2+, Cu2+ As3+, Aℓ3+, Fe3+, Mn2+, Zn2+, Ni2+, Ca2+, Sr2+, Ba2+, Mg2+, NH4+

### Anions:

(CO3)2-, S2-, (SO3)2-, (NO2)-, (SO4)2-, Cℓ-, Br-, I-, (PO4)3-, (C2O4)2-, CH3COO- , NO3 -

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### Anions:

(CO3)2-, S2-, (SO3)2-, (NO2)-, (SO4)2-, Cℓ-, Br-, I-, (PO4)3-, (C2O4)2-, CH3COO- , NO3 -

**BIOLOGY (044)**

**Theory: 70 marks Time allowed: 3 hours**

**Practical: 30 marks**

|  |  |  |
| --- | --- | --- |
| Unit | Title | Marks |
| VI | Reproduction | 16 |
| VII | Genetics and Evolution | 20 |
| VIII | Biology and Human Welfare | 12 |
| IX | Biotechnology and its Applications | 12 |
| X | Ecology and Environment | 10 |
|  | Total | 70 |

# April-May

**Chapter-2 Reproduction in Flowering Plants**

Flower structure; development of male and female gametophytes; pollination - types, agencies and examples; out breeding devices; pollen-pistil interaction; double fertilization; post fertilization events - development of endosperm and embryo, development of seed and formation of fruit; special modes- apomixis, parthenocarpy, polyembryony; Significance of seed dispersal and fruit formation.

**Chapter-3 Human Reproduction**

Male and female reproductive systems; microscopic anatomy of testis and ovary; gametogenesis -spermatogenesis and oogenesis; menstrual cycle; fertilisation, embryo development upto blastocyst formation, implantation; pregnancy and placenta formation (elementary idea); parturition (elementary idea); lactation (elementary idea).

**Chapter-4 Reproductive Health**

Need for reproductive health and prevention of Sexually Transmitted Diseases (STDs); birth control - need and methods, contraception and medical termination of pregnancy (MTP); amniocentesis; infertility and assisted reproductive technologies - IVF, ZIFT, GIFT (elementary idea for general awareness).

**Chapter-5 Principles of inheritance and variation**

Mendelian inheritance; deviations from Mendelism – incomplete dominance, co-dominance, multiple alleles and inheritance of blood groups, pleiotropy; elementary idea of polygenic inheritance; chromosome theory of inheritance; chromosomes and genes; Sex determination - in humans, birds and honey bee; linkage and crossing over; sex linked inheritance - haemophilia, colour blindness; Mendelian disorders in humans - thalassemia; chromosomal disorders in humans; Down's syndrome, Turner's and Klinefelter's syndromes.

# July

**Chapter-6 Molecular basis of inheritance**

Search for genetic material and DNA as genetic material; Structure of DNA and RNA; DNA packaging; DNA replication; Central Dogma; transcription, genetic code, translation; gene 8 expression and regulation - lac operon; Genome, Human and rice genome projects; DNA fingerprinting

**Chapter-7 Evolution**

Origin of life; biological evolution and evidences for biological evolution (paleontology, comparative anatomy, embryology and molecular evidences); Darwin's contribution, modern synthetic theory of evolution; mechanism of evolution - variation (mutation and recombination) and natural selection with examples, types of natural selection; Gene flow and genetic drift; Hardy - Weinberg's principle; adaptive radiation; human evolution

# August-September

**Chapter-8 Human health and diseases**

Pathogens; parasites causing human diseases (malaria, dengue, chikungunya, filariasis, ascariasis, typhoid, pneumonia, common cold, amoebiasis, ring worm) and their control; Basic concepts of immunology - vaccines; cancer, HIV and AIDS; Adolescence - drug and alcohol abuse.

**Chapter-10 Microbes in Human welfare**

Microbes in food processing, industrial production, sewage treatment, energy generation andmicrobes as bio-control agents and bio-fertilizers. Antibiotics; production and judicious use.

**Chapter-11 Biotechnology- principles and processes**

Genetic Engineering (Recombinant DNA Technology).

# October-November

**Chapter-12 Biotechnology and its application**

Application of biotechnology in health and agriculture: Human insulin and vaccine production, stem cell technology, gene therapy; genetically modified organisms - Bt crops; transgenic animals; biosafety issues, biopiracy and patents.

**Chapter-13 Organisms and population**

Population interactions - mutualism, competition, predation, parasitism; population attributes - growth, birth rate and death rate, age distribution. (Topics excluded: Organism and its Environment, Major Aboitic Factors, Responses to Abioitic Factors, Adaptations)

**Chapter-14 Ecosystem**

Ecosystems: Patterns, components; productivity and decomposition; energy flow; pyramids of number, biomass, energy (Topics excluded: Ecological Succession and Nutrient Cycles)

**December**

**Chapter-15 Biodiversity and conservation**

Biodiversity-Concept, patterns, importance; loss of biodiversity; biodiversity conservation; hotspots, endangered organisms, extinction, Red Data Book, Sacred Groves, biosphere reserves, national parks, wildlife, sanctuaries and Ramsar sites.

**January**

# Revision

# Assessments

**Periodic Test-I (July)**

Chapter-2 Reproduction in Flowering Plants

Chapter-3 Human Reproduction

Chapter-4 Reproductive Health

**Periodic Test-II (August)**

Chapter-5 Principles of inheritance and variation

Chapter-6 Molecular basis of inheritance

Chapter-7 Evolution

**Mid Term Examination (September)**

Chapter-2 Reproduction in Flowering Plants

Chapter-3 Human Reproduction

Chapter-4 Reproductive Health

Chapter-5 Principles of inheritance and variation

Chapter-6 Molecular basis of inheritance

Chapter-7 Evolution

**Periodic Test-III (December)**

Chapter-8 Human health and diseases

Chapter-10 Microbes in Human welfare

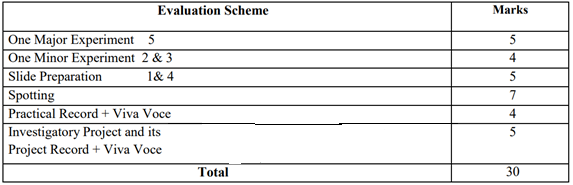
Chapter-11 Biotechnology- principles and processes

Chapter-12 Biotechnology and its application

**Pre Board Examination**

**Full Syllabus**

**LIST OF PRACTICALS**



**A. List of Experiments**

1. Prepare a temporary mount to observe pollen germination.

2. Study the plant population density by quadrat method.

3. Study the plant population frequency by quadrat method.

4. Prepare a temporary mount of onion root tip to study mitosis.

5. Isolate DNA from available plant material such as spinach, green pea seeds, papaya, etc.

**B. Study and observe the following (Spotting):**

1. Flowers adapted to pollination by different agencies (wind, insects, birds).

2. Pollen germination on stigma through a permanent slide or scanning electron micrograph.

3. Identification of stages of gamete development, i.e., T.S. of testis and T.S. of ovary through permanent slides (from grasshopper/mice).

4. Meiosis in onion bud cell or grasshopper testis through permanent slides.

5. T.S. of blastula through permanent slides (Mammalian).

6. Mendelian inheritance using seeds of different colour/sizes of any plant.

7. Prepared pedigree charts of any one of the genetic traits such as rolling of tongue, blood groups, ear lobes, widow's peak and colour blindness.

8. Controlled pollination - emasculation, tagging and bagging.

9. Common disease causing organisms like Ascaris, Entamoeba, Plasmodium, any fungus causing ringworm through permanent slides, models or virtual images or specimens. Comment on symptoms of diseases that they cause.

10. Models specimen showing symbolic association in root modules of leguminous plants, Cuscuta on host, lichens.

11.Flash cards models showing examples of homologous and analogous organs.

**MATHEMATICS (041)**

**THEORY - 80**

**PRACTICAL - 20 TIME: 3HOURS**

**EVALUTION SCHEME**

|  |  |  |
| --- | --- | --- |
| UNITS | UNIT NAME | MARKS |
| I | **R**ELATIONS AND FUNCTIONS | **0**8 |
| II | **ALGEBRA** | **1**0 |
| III | **CALCULUS** | **3**5 |
| IV | **VECTORS AND THREE-DIMENSIONAL GEOMETRY** | **1**4 |
| V | **LINEAR PROGRAMMING** | **0**5 |
| VI | **PROBABILITY** | **0**8 |
|  | **INTERNAL ASSESSMENT** | **2**0 |
|  | **TOTAL** | **1**00 |

**APRIL – MAY**

**Unit I: Relations and Functions**

**Relations and Functions:** Types of relations: reflexive, symmetric, transitive, and equivalence relations. One to one and onto functions.

**Inverse Trigonometric Functions:** Definition, range, domain, principal value branch. Graphs of inverse trigonometric functions.

**Unit II: Algebra**

**Matrices:** Concept, notation, order, equality, types of matrices, zero and identity matrix, transpose of a matrix, symmetric and skew-symmetric matrices. Operation on matrices: Addition and multiplication and multiplication with a scalar. Simple properties of addition, multiplication, and scalar multiplication. On commutativity of multiplication of matrices and existence of non-zero matrices whose product is the zero matrices (restrict to square matrices of order 2). Invertible matrices and proof of the uniqueness of inverse, if it exists; (Here all matrices will have real entries).

**Determinants:** Determinants of a square matrix (up to 3 x 3 matrices), minors, co-factors, and applications of determinants in finding the area of a triangle. Adjoint and inverse of a square matrix. Consistency, inconsistency, and the number of solutions of the system of linear equations by examples, solving system of linear equations in two or three variables (having unique solution) using the inverse of a matrix.

**JULY**

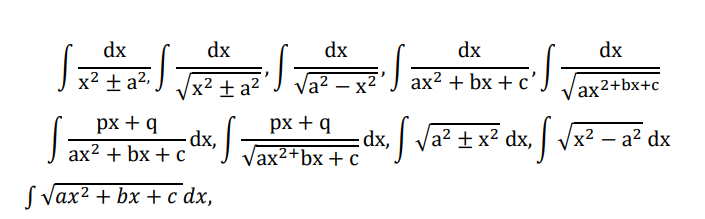
**Unit III: Calculus**

**Continuity and Differentiability:**Continuity and differentiability, chain rule, the derivative of inverse trigonometric functions, 𝑙𝑖𝑘𝑒 sin−1 𝑥, cos−1 𝑥, and tan−1 𝑥, derivative of implicit functions. Concept of exponential and logarithmic functions.

Derivatives of logarithmic and exponential functions. Logarithmic differentiation is the derivative of functions expressed in parametric forms. Second-order derivatives.

**AUGUST-SEPTEMBER**

**Applications of Derivatives:** Applications of derivatives: rate of change of bodies, increasing/decreasing functions, maxima and minima (first derivative test motivated geometrically and second derivative test given as a provable tool). Simple problems (that illustrate basic principles and understanding of the subject as well as real-life situations).

**Integrals:** Integration is an inverse process of differentiation. Integration of a variety of functions by substitution, by partial fractions, and by parts, Evaluation of simple integrals of the following types and problems based on them.

Fundamental Theorem of Calculus (without proof). Basic properties of definite integrals and evaluation of definite integrals.

**OCTOBER – NOVEMBER**

**Applications of the Integrals:** Applications in finding the area under simple curves, especially lines, circles/ parabolas/ellipses (in standard form only).

**Differential Equations:** Definition, order, and degree, general and particular solutions of a differential equation. Solution of differential equations by the method of separation of variables, solutions of homogeneous differential equations of the first order and first degree. Solutions of linear differential equation of the type:

dy/dx + py = q, where p and q are functions of x or constants.

d𝑥/d𝑦 + px = q, where p and q are functions of y or constants.

**Unit IV: Vectors and Three-Dimensional Geometry**

**Vectors:** Vectors and scalars, magnitude and direction of a vector. Direction cosines and direction ratios of a vector. Types of vectors (equal, unit, zero, parallel and collinear vectors), position vector of a point, negative of a vector, components of a vector, the addition of vectors, multiplication of a vector by a scalar, position vector of a point dividing a line segment in a given ratio. Definition, Geometrical Interpretation, properties, and application of scalar (dot) product of vectors, vector (cross) product of vectors.

**DECEMBER**

**Three-dimensional Geometry:** Direction cosines and direction ratios of a line joining two points. Cartesian equation and vector equation of a line, skew lines, the shortest distance between two lines. The angle between two lines.

**Unit V: Linear Programming**

**Linear Programming:** Introduction, related terminology such as constraints, objective function, optimization, graphical method of solution for problems in two variables, feasible and infeasible regions (bounded or unbounded), feasible and infeasible solutions, optimal feasible solutions (up to three non-trivial constraints).

**Unit VI: Probability**

**Probability:** Conditional probability, multiplication theorem on probability, independent events, total probability, Bayes’ theorem, Random variable, and its probability distribution, mean of the random variable.

**JANUARY**

**REVISION OF THE SYLLABUS AND PRACTICAL**.

**ASSESSMENT:**

**PERIODIC TEST 1: (JULY)**

CHAPTER 1: RELATION AND FUNCTION

CHAPTER 2: INVERSE TRIGNOMETRIC FUNCTION

CHAPTER 3: MATRICES

CHAPTER 4: DETERMINANT

**PERIODIC TEST 2: (AUGUST)**

CHAPTER 5: CONTINUITY AND DIFFERENTIABILITY

CHAPTER 6: APPLICATION OF DERIVATIVE

**MID TERM EXAMINATION: (SEPTEMBER)**

CHAPTER 1: RELATION AND FUNCTION

CHAPTER 2: INVERSE TRIGNOMETRIC FUNCTION

CHAPTER 3: MATRICES

CHAPTER 4: DETERMINANT

CHAPTER 5: CONTINUITY AND DIFFERENTIABILITY

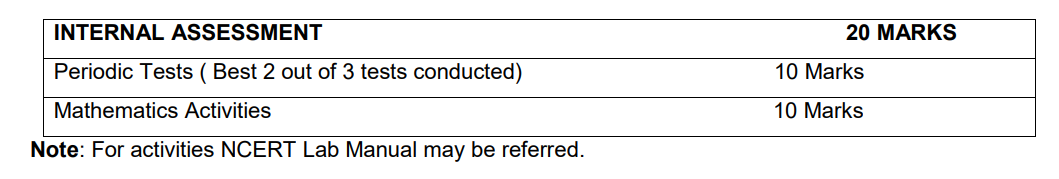
CHAPTER 6: APPLICATION OF DERIVATIVE

**PERIODIC TEST 3: (DECEMBER)**

CHAPTER 7: INTEGRALS

CHAPTER 8: APPLICATION OF INTEGRALS

**PREBOARD EXAMINATION:**

COMPLETE SYLLABUS AS PER CBSE

**PRACTICALS:**

**Activity 1:** To verify that the relation R in the set L of all lines in a plane, defined by R = {(l, m): l ⊥ m} is symmetric but neither reflexive nor transitive

**Activity 2:** To demonstrate a function which is one-one but is onto.

**Activity 3:** To sketch the graph of 𝑎𝑥 and 𝑙𝑜𝑔𝑎𝑥,a>0, a≠0 and to examine that they are mirror images of each other.

**Activity 4:** To find analytically the limit of the function f(x)at x=c and also to check the continuity of the function at that point.

**Activity 5**: To construct an open box of maximum volume from a given rectangular sheet by cutting equal squares from each corner

**Activity 6:** To understand the concepts of decreasing and increasing functions.

**Activity 7:** To understand the concept of absolute maximum and minimum values of a function in a given closed interval through its graph.

**Activity 8:** To verify that amongst all the rectangles of the same perimeter, the squares has the maximum area.

**Activity 9:** To verify that angles in a semi -circle is a right angle, using vector method

**Activity 10:** To explain the computation of conditional probability of a given event A, when event B has already occurred, through an example of throwing a pair of dice.

**The weightage is as under:**

**• The activities performed by the student throughout the year and record keeping: 5 marks**

**• Assessment of the activity performed during the year end test: 3 marks**

**• Viva-voce: 2 marks**

**Economics(030)**

|  |  |  |
| --- | --- | --- |
| **Units** |  | **Marks** |
| Part A | Introductory Macroeconomics |  |
| 1 | National Income and Related Aggregates | 10 |
| 2 | Money and Banking | 06 |
| 3 | Determination of Income and Employment | 12 |
| 4 | Government Budget and the Economy | 06 |
| 5 | Balance of Payments | 06 |
|  | Total | 40 |
| Part B | Indian Economic Development |  |
| 6 | Development Experience (1947-1990) and Economic Reforms since 1991 | 12 |
| 7 | Current Challenges Facing Indian Economy | 20 |
| 8 | Development Experience of India- A Comparison with Neighbours | 08 |
|  | Total | 40 |
| Part C | Project Work | 20 |
| Grand Total | A+B+C  Theory Paper = 80 Marks Project = 20 Marks | 100 |

# April and May

## Macro Economics

UNIT -2 Money and Banking

Money – meaning and functions, supply of money - Currency held by the public and net demand deposits held by commercial banks. Money creation by the commercial banking system. Central bank and its functions (example of the Reserve Bank of India): Bank of issue, Govt. Bank, Banker's Bank, Control of Credit through Bank Rate, CRR, SLR, Repo Rate and Reverse Repo Rate, Open Market Operations, Margin requirement.

UNIT -4 Government Budget and the Economy

Government budget - meaning, objectives and components. Classification of receipts

* revenue receipts and capital receipts; Classification of expenditure – revenue expenditure and capital expenditure. Balanced, Surplus and Deficit Budget – measures of government deficit.

UNIT-1 National Income and Related Aggregates

What is Macroeconomics? Basic concepts in macroeconomics: consumption goods, capital goods, final goods, intermediate goods; stocks and flows; gross investment and depreciation. Circular flow of income (two sector model); Methods of calculating National Income - Value Added or Product method, Expenditure method, Income method. Aggregates related to National Income: Gross National Product (GNP), Net National Product (NNP), Gross Domestic Product (GDP) and Net Domestic Product (NDP) - at market price, at factor cost; Real and Nominal GDP.GDP and Welfare

## Indian Economy

UNIT-6 Development Experience (1947-90)

A brief introduction of the state of Indian economy on the eve of independence. Indian economic system and common goals of Five-Year Plan.

**# Project work**

# July

## Macro Economics

UNIT-5 Balance of Payments

Balance of payments account - meaning and components; Balance of payments – Surplus and Deficit.

## Indian Economy

UNIT-6 Development Experience (1947-90) and Economic Reforms since 1991 Main features, problems and policies of agriculture (institutional aspects and new

agricultural strategy), industry (IPR 1956; SSI – role & importance) and foreign trade.

**Economic Reforms since 1991** Features and appraisals of liberalisation, globalisation and privatisation (LPG policy); Concepts of demonetization and GST

# August and September

## Macro Economics

UNIT-5 Balance of Payments

Foreign exchange rate - meaning of fixed and flexible rates and managed floating. Determination of exchange rate in a free market, Merits and demerits of flexible and fixed exchange rate. Managed Floating exchange rate system.

## Indian Economy

UNIT-7 Current Challenges facing Indian Economy

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

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

**Employment**: Growth and changes in work force participation rate in formal and informal sectors; problems and policies.

# October and November

## Macro Economics

UNIT-3 Determination of Income and Employment

Aggregate demand and its components. Propensity to consume and propensity to save (average and marginal). Short-run equilibrium output; investment multiplier and its mechanism. Meaning of full employment and involuntary unemployment. Problems of excess demand and deficient demand; measures to correct them - changes in government spending, taxes and money supply

## Indian Economy

UNIT-7 Current Challenges facing Indian Economy

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

# December

## Indian Economy

UNIT -8 Development Experience of India – A Comparison with Neighbours

A comparison with neighbours India and Pakistan, India and China .**Issues**: economic growth, population, sectoral development and other Human Development Indicators.

# January -: Revision

## Periodic Test 1 (July)

* + Macro Economics
* Money and Banking
* Government Budget and the Economy
  + Indian Economy
* Indian Economy on the eve of Independence
* Five years Plan in India

## Periodic Test 2 (August)

* + Macro Economics
* National Income and Related Aggregates
  + Indian Economy
* Economic Reforms since 1991

## Mid Term Examination (September)

* + Macro Economics
    - National Income
    - Money and Baking
    - Government Budget
    - Balance of Payment
    - Foreign Exchange Rate
  + Indian Economy
    - Indian Economy on the eve of Independence
    - Five Year Plan in India
    - Features ,Problems and Policies of Agriculture
    - Strategy of Industrial Growth
    - India’s Foreign Trade
    - Economic Reforms Since 1991 or New Economic Policy
    - Human Capital Formation
    - Rural development
    - Employment

## Periodic Test 3 (December)

* + Macro Economics
* Determination of Income and Employment
  + Indian Economy
* Sustainable Economic Development

## Pre- Board Examination

**Complete syllabus as per CBSE**

**BUSINESS STUDIES (054)**

**Theory: 80 Marks TIME ALLOWED: 3 Hours**

**Project: 20 Marks**

|  |  |  |
| --- | --- | --- |
|  | **Units** | **Marks** |
| **Part A** | **Principles and Functions of Management** |  |
| 1 | Nature and Significance of Management | 16 |
| 2 | Principles of Management |
| 3 | Business Environment |
| 4 | Planning | 14 |
| 5 | Organizing |
| 6 | Staffing | 20 |
| 7 | Directing |
| 8 | Controlling |
| **Part B** | **Business Finance and Marketing** |  |
| 9 | Financial Management | 15 |
| 10 | Financial Markets |
| 11 | Marketing Management | 15 |
| 12 | Consumer Protection |
|  | **Theory (Part A + Part B)** | **80** |
| **Part C** | **Project Work (ONE)** | **20** |
|  | **Total** | **100** |

**APRIL - MAY**

Part A: Principles and Functions of Management

**Unit I: Nature and Significance of Management**

Management - concept, objectives and importance

Meaning of ‘Effectiveness and Efficiency

Management as Science, Art and Profession

Levels of Management

Management functions-planning, organizing, staffing, directing and controlling

Coordination- concept and importance

**Unit 2: Principles of Management**

Principles of Management- concept and significance

Fayol’s principles of management

Taylor’s Scientific Management

**Unit 3: Management and Business Environmen**t

Concept and importance

Dimensions of Business Environment

Demonetisation

**# Project work as per cbse guidelines**

**JULY**

**Unit 4: Planning**

Concept, importance and limitations

Planning process

Single use and standing plans. Objectives, Strategy, Policy, Procedure, method Rule, budget and Programme

**Unit 5: Organising**

Organising: Concept and importance

Organising Process

Structure of organisation- functional and divisional. Formal and informal organisation

Delegation: concept, elements and importance

Decentralization: concept and importance

**# ACTIVITY: COLLAGE/CRAFT BOX/ WALL HANGING/COMPUTER DESIGNING**

**August- September**

**Unit 6: Staffing**

Concept and importance of staffing

Recruitment process

Staffing process

Training and Development- Concept and importance, Methods of training - on the job and off the job - vestibule training, apprenticeship training and internship training

**Unit 7: Directing**

Directing: Concept and importance

Elements of Directing

Motivation - concept, Maslow’s hierarchy of needs, Financial and non-financial incentives

Leadership - concept, styles - authoritative, democratic and laissez faire

Communication - concept, formal and informal; barriers to effective communication, how to overcome the barriers

**# REVISION TERM 1**

**October- November**

**Unit 8: Controlling**

Concept, nature, process and importance

Relationship between planning and controlling

***Part B: Business Finance and Marketing***

**Unit 9: Financial Management**

Financial Management: Concept, role and objectives

Financial decisions: investment, financing and dividend- Meaning and factors affecting

Financial Planning - concept and importance

Capital Structure – concept and factors affecting capital structure

Fixed and Working Capital - Concept and factors affecting their requirements

**Unit 10: Financial Markets**

Financial Markets: Concept, Functions and types

Money market and its instruments

Capital market: Concept, types (primary and secondary), methods of floatation in the primary market

Distinguish between primary and secondary markets.

Stock Exchange – Meaning, Functions and trading procedure

Securities and Exchange Board of India (SEBI) - objectives and functions

**December**

**Unit 11: Marketing Management**

Marketing - concept and functions.

Marketing management philosophies.

Marketing Mix – concept and elements

Product - concept, branding, labeling and packaging.

Price- concept ,factors determining price

Physical distribution concept, components and channels of distribution

Promotion - advertising, personal selling , sales promotion, public relations

**Unit 12: Consumer Protection**

Consumer Protection Act 2019

Meaning of consumer Rights and responsibilities of consumers Who can file a complaint?

Redressal machinery

Remedies available

**January- February**

**Completion of project work and Revision for term 2**

**ASSESSMENTS**

**PERIODIC TEST 1 (JULY)**

Unit 1: Nature and Significance of Management

Unit 2: Principles of Management

Unit 3: Management and Business Environment

**PERIODIC TEST 2I (AUGUST)**

Unit 4: Planning

Unit 5: Organising

**MID TERM EXAMINATION ( SEPTEMBER)**

Unit 1: Nature and Significance of Management

Unit 2: Principles of Management

Unit 3: Management and Business Environment

Unit 4: Planning

Unit 5: Organising

Unit 6: Staffing

**PERIODIC TEST 3 ( DECEMBER)**

Unit 9: Financial Management

Unit 10: Financial Markets

**PREBOARD**

**COMPLETE TERM II SYLLABUS AS PER CBSE GUIDELINES**

**\*PROJECT ASSESSEMENT**

**PROJECT WORK TOTAL 20 MARKS (ONLY ONE PROJECT)**

|  |  |
| --- | --- |
| **ASSESSMENT RUBRICS** | **MARKS** |
| Initiative, cooperativeness and participation | 2 |
| Creativity in presentation | 2 |
| Content, observation and research work | 4 |
| Analysis of situations | 4 |
| Viva based on the project | 8 |
| **TOTAL** | **20** |

**Accountancy (Code No. 055)**

#### **Theory: 80 Marks** **3 Hours**

**Project: 20 Marks**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Units** |  | | **Periods** | **Marks** |
| **Part A** | **Accounting for Partnership Firms and Companies** | |  |  |
|  | Unit 1. Accounting for Partnership Firms | | 105 | 36 |
|  | Unit 2. Accounting for Companies | | 45 | 24 |
|  |  | | **150** | **60** |
| **Part B** | **Financial Statement Analysis** | |  |  |
|  | Unit 3. Analysis of Financial Statements | | 30 | 12 |
|  | Unit 4. Cash Flow Statement | | 20 | 8 |
|  |  | | **50** | **20** |
| **Part C** | **Project Work** | | 20 | 20 |
|  | Project work will include: | |  |  |
|  | Project File | 4 Marks |  |  |
|  | Written Test | 12 Marks (One Hour) |  |  |
|  | Viva Voce | 4 Marks |  |  |
| **Or** | | | | |
| **Part B** | **Computerized Accounting** | |  |  |
|  | Unit 4. Computerized Accounting | | 50 | 20 |
| **Part C** | **Practical Work** | | 20 | 20 |
|  | Practical work will include: | |  |  |
|  | Practical File 4 Marks | |  |  |
|  | Practical Examination 12 Marks (One Hour) | |  |  |
|  | Viva Voce 4 Marks | |  |  |

**Part A: Accounting for Partnership Firms and Companies**

#### Unit 1: Accounting for Partnership Firms

|  |  |
| --- | --- |
| **Units/Topics** | |
| * Partnership: features, Partnership Deed. * Provisions of the Indian Partnership Act 1932 in the absence of partnership deed. * Fixed v/s fluctuating capital accounts. Preparation of Profit and Loss Appropriation account- division of profit among partners, guarantee of profits. * Past adjustments (relating to interest on capital, interest on drawing, salary and profit sharing ratio). * Goodwill: meaning, nature, factors affecting and methods of valuation - average profit, super profit and capitalization.   ***Note:*** *Interest on partner's loan is to be treated as a charge against profits.*  Goodwill: meaning, factors affecting, need for valuation, methods for calculation (average profits, super profits and capitalization) , adjusted through partners capital/ current account or by raising and writing off goodwill (AS 26)  **Accounting for Partnership firms - Reconstitution and Dissolution.**   * **Change in the Profit Sharing Ratio** among the existing partners - sacrificing ratio, gaining ratio, accounting for revaluation of assets and reassessment of liabilities and treatment of reserves, accumulated profits and losses. Preparation of revaluation account and balance sheet. * **Admission of a partner** - effect of admission of a partner on change in the profit sharing ratio, treatment of goodwill (as per AS 26), treatment for revaluation of assets and re-   assessment of liabilities, treatment of | |
| reserves, accumulated profits and losses, adjustment of capital accounts and preparation of capital, current account and balance sheet.   * **Retirement and death of a partner:** effect of retirement / death of a partner on change in profit sharing ratio, treatment of goodwill (as per AS 26), treatment for revaluation of assets and reassessment of liabilities, adjustment of accumulated profits, losses and reserves, adjustment of capital accounts and preparation of capital, current account and balance sheet. Preparation of loan account of the retiring partner. * Calculation of deceased partner’s share of profit till the date of death. Preparation of deceased partner’s capital account and his executor’s account. * **Dissolution of a partnership firm:** meaning of dissolution of partnership and partnership firm, types of dissolution of a firm. Settlement of accounts - preparation of realization account, and other related accounts: capital accounts of partners and cash/bank a/c (excluding piecemeal distribution, sale to a company and insolvency of partner(s)).   **Note:**   1. If the realized value of tangible assets is not given it should be considered as realized at book value itself. 2. If the realized value of intangible assets is not given it should be considered as nil (zero value).   (ii) In case, the realization expenses are borne by a  partner, clear indication should be given regarding the payment thereof. |

**Unit-3 Accounting for Companies**

|  |  |  |
| --- | --- | --- |
| **Units/Topics** |  | |
| **Accounting for Share Capital**   * Features and types of companies |  | |
| * Share and share capital: nature and types. * Accounting for share capital: issue and allotment of equity and preferences shares. Public subscription of shares - over subscription and under subscription of shares; issue at par and at premium, calls in advance and arrears (excluding interest), issue of shares for consideration other than cash. * Concept of Private Placement and Employee Stock Option Plan (ESOP), Sweat Equity. * Accounting treatment of forfeiture and re- issue of shares. * Disclosure of share capital in the Balance Sheet of a company.   **Accounting for Debentures**   * Debentures: Meaning, types, Issue of debentures at par, at a premium and at a discount. Issue of debentures for consideration other than cash; Issue of debentures with terms of redemption; debentures as collateral security-concept, interest on debentures. Writing off discount / loss on issue of debentures.   Note: Discount or loss on issue of debentures to be written off in the year debentures are allotted from Security Premium Reserve (if it exists) and then from Statement of Profit and Loss as Financial Cost (AS  16) | |

**Part B: Financial Statement Analysis**

#### Unit 4: Analysis of Financial Statements

|  |
| --- |
| **Units/Topics** |
| **Financial statements of a Company:**  Meaning, Nature, Uses and importance of financial Statement. |
| **Statement of Profit and Loss and Balance Sheet in prescribed form with major headings and sub headings (as per Schedule III to the Companies Act, 2013)**  **Note: Exceptional items, extraordinary items and profit (loss) from discontinued operations are excluded.**   * **Financial Statement Analysis: Meaning, Significance Objectives, importance and limitations.** * **Tools for Financial Statement Analysis:**   **Cash flow analysis, ratio analysis.**   * **Accounting Ratios: Meaning, Objectives, Advantages, classification and computation.** * **Liquidity Ratios: Current ratio and Quick ratio.** * **Solvency Ratios: Debt to Equity Ratio, Total Asset to Debt Ratio, Proprietary Ratio and Interest Coverage Ratio. Debt to Capital Employed Ratio.** * **Activity Ratios: Inventory Turnover Ratio, Trade Receivables Turnover Ratio, Trade Payables Turnover Ratio, Fixed Asset Turnover Ratio, Net Asset Turnover Ratio and Working Capital Turnover Ratio.** * **Profitability Ratios: Gross Profit Ratio, Operating Ratio, Operating Profit Ratio, Net**   **Profit Ratio and Return on Investment.** |

**Note:** Net Profit Ratio is to be calculated on the basis of profit before and after tax.

#### Unit 5: Cash Flow Statement

|  |  |
| --- | --- |
| **Units/Topics** | **Learning Outcomes** |
| * Meaning, objectives Benefits, Cash and Cash Equivalents, Classification of Activities and preparation (as per AS 3 (Revised) (Indirect Method only) | **After going through this Unit, the students will be able to:**   * state the meaning and objectives of cash flow statement. * develop the understanding of preparation of |

|  |  |
| --- | --- |
| ***Note:***   1. *Adjustments relating to depreciation and amortization, profit or loss on sale of assets including investments, dividend (both final and interim) and tax.* 2. *Bank overdraft and cash credit to be treated as short term borrowings.* 3. *Current Investments to be taken as Marketable securities unless otherwise specified.* | Cash Flow Statement using indirect method as per AS 3 with given adjustments. |

**PHYSICAL EDUCATION (048)**

**Theory Max. Marks 70**

**APRIL-MAY**

**Unit I Management of Sporting Events**

* Functions of Sports Events Management (Planning, Organising, Staffing, Directing &

Controlling)

* Various Committees & their Responsibilities (pre; during & post)
* Fixtures and its Procedures – Knock-Out (Bye & Seeding) & League (Staircase & Cyclic)

**Unit II Children & Women in Sports**

* Common Postural Deformities - Knock Knee; Bow Legs; Flat Foot; Round Shoulders;

Lordosis, Kyphosis, and Scoliosis and their corrective measures

* Special consideration (Menarche & Menstrual Dysfunction)
* Female Athletes Triad (Osteoporosis, Amenorrhea, Eating Disorders)

**JULY**

**Unit III Yoga as Preventive measure for Lifestyle Disease**

* Obesity: Procedure, Benefits & Contraindications for Vajrasana, Hastotansana,

Trikonasana, Ardha - Matsyendrasana

* Diabetes: Procedure, Benefits & Contraindications for Bhujangasana,

Paschimottanasana, Pavan muktasana, Ardha - Matsyendrasana, Kapalabhati

* Asthma: Procedure, Benefits & Contraindications for Sukhasana, Chakrasana,

Gomukhasana, Parvatasana, Bhujangasana, Paschimottanasana, Matsyaasana,

Anulom-Vilom

* Hypertension: Procedure, Benefits & Contraindications for Tadasana, Vajrasana, Pavan

Muktasana, Ardha Chakrasana, Bhujangasana, Shavasana

**Unit IV Physical Education & Sports for CWSN (Children with Special Needs - Divyang)**

* Organizations promoting Disability Sports (Special Olympics; Paralympics;

Deaflympics)

* Advantages of Physical Activities for children with special needs.
* Strategies to make Physical Activities assessable for children with special needs.

**AUGUST-SEPTEMBER**

**Unit V Sports & Nutrition**

* Concept of balance diet and nutrition
* Macro and Micro Nutrients: Food sources & functions
* Nutritive & Non-Nutritive Components of Diet

**Unit VI Test & Measurement in Sports**

* Fitness Test – SAI Khelo India Fitness Test in school:
* Age group 5-8 yrs/ class 1-3: BMI, Flamingo Balance Test, Plate Tapping Test
* Age group 9-18yrs/ class 4-12: BMI, 50mt Speed test, 600mt Run/Walk, Sit &

Reach flexibility test, Strength Test (Abdominal Partial Curl Up, Push-Ups for

boys, Modified Push-Ups for girls).

* Computing Basal Metabolic Rate (BMR)
* Rikli & Jones - Senior Citizen Fitness Test

I. Chair Stand Test for lower body strength

II. Arm Curl Test for upper body strength

III. Chair Sit & Reach Test for lower body flexibility

IV. Back Scratch Test for upper body flexibility

V. Eight Foot Up & Go Test for agility

VI. Six Minute Walk Test for Aerobic Endurance

**Unit VII Physiology & Injuries in Sports**

* Physiological factors determining components of physical fitness
* Effect of exercise on Muscular System
* Effect of exercise on Cardio-Respiratory System
* Sports injuries: Classification (Soft Tissue Injuries -Abrasion, Contusion, Laceration,

Incision, Sprain & Strain; Bone & Joint Injuries - Dislocation, Fractures - Green Stick,

Comminuted, Transverse Oblique & Impacted)

**OCTOMBER - NOVEMBER**

**Unit VIII Biomechanics & Sports**

* Newton’s Law of Motion & its application in sports

• Equilibrium – Dynamic & Static and Centre of Gravity and its application in sports

* Friction & Sports
* Projectile in Sports

**Unit IX Psychology & Sports**

* Personality; its definition & types (Jung Classification & Big Five Theory)
* Meaning, Concept & Types of Aggressions in Sports
* Psychological Attributes in Sports – Self Esteem, Mental Imagery, Self Talk, Goal

Setting

**DECEMBER**

**Unit X Training in Sports**

* Concept of Talent Identification and Talent Development in Sports
* Introduction to Sports Training Cycle – Micro, Meso, Macro Cycle.
* Types & Method to Develop – Strength, Endurance and Speed
* Types & Method to Develop – Flexibility and Coordinative Ability

**JANUARY**

Revision of complete syllabus

**Practical Max. Marks 30**

* Physical Fitness Test : SAI Khelo India test, Brockport Physical Fitness Test (BPFT)\* 6 Marks
* Yogic Practices\*\* 7 Marks
* Record File \*\*\* 5 Marks
* Viva Voce (Health/ Games & Sports/ Yoga) 5 Marks

\* Test for CWSN (any 4 items out of 27items but 1 item from each component: Aerobic function, Body Composition, Muscular strength & endurance, range of motion or flexibility)

\*\*Basketball, Football, Kabaddi, Kho-Kho, Volleyball, Handball, Hockey, Cricket.

\*\*CWSN (Children With Special Needs – Divyang): Bocce/Boccia , Sitting Volleyball, Wheel

Chair Basketball, Unified Badminton, Unified Basketball, Unified Football, Blind Cricket,

Goalball, Floorball, Wheel chair races and throws, or any other sport/games of choice.

\*\*Children With Special Needs may opt any one sport/game from the list as alternative for Yogic

Practices. However, the sport/game must be different for skill of Game and alternate to yogic

practices.

\*\*\*Record File shall include:

* Practical-1: Fitness tests administration.
* Practical-2: Procedure for Asanas, Benefits & Contraindication for any two Asanas for

each lifestyle disease.

* Practical-4: Anyone game of your choice out of the list above. Labelled diagram of field

& equipment (Rules, Terminologies & Skills)

**FEBRURAY**

REVISION FOR COMPLETE SYLLABUS

**Assessments**

**PERIODIC TEST -1 (JULY)**

Unit I Management of Sporting Events

Unit II Children & Women in Sports

**PERIODIC TEST - II (AUGUST)**

Unit III Yoga as Preventive measure for Lifestyle Disease

Unit V Sports & Nutrition

**MID TERM EXAMINATION (OCTOBER)**

Unit I Management of Sporting Events

Unit II Children & Women in Sports

Unit III Yoga as Preventive measure for Lifestyle Disease

Unit IV Physical Education & Sports for CWSN (Children with Special Needs - Divyang)

Unit V Sports & Nutrition

**PERIODIC TEST -III (DECEMBER)**

Unit VI Test & Measurement in Sports

Unit VII Physiology & Injuries in Sports

Unit VIII Biomechanics & Sports

**PRE-BOARD EXAMINATION**

COMPLETE SYLLABUS AS PER CBSE