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Syllabus for Class : XII

Subject : English Core

Subject code (301)

Session : 2019 – 2020

Prescribed Books

1. Flamingo: English Reader published by National Council of Education Research and Training, New Delhi

2. Vistas: Supplementary Reader published by National Council of Education Research and Training, New Delhi

SECTION A

Reading Comprehension

The section A will have two passages.

20 Marks

Reading Unseen Passages and Note making

One unseen passages with a variety of Objective Type Questions including MCQ questions and Short Answer Questions to test comprehension, interpretation and inference. Vocabulary such as word formation and inference of meaning will also be tested.

The total length of the two passages will be between 800 -900 words. Five Multiple Choice type question and seven Objective Type Questions (total 12 Marks) shall be asked from this passage. The passage will include one of the following:

- a. Factual passages, e.g., instructions, descriptions, reports.
 - b. Descriptive passages involving opinion, e.g., argumentative, persuasive or interpretative text.
 - c. Literary passages, e.g., extract from fiction, drama, poetry, essay or biography.
- The second passage of 400-500 words. Note-making and Abstraction will be assessed.

1. Note making (4 Marks)
2. Summary (4 Marks)

SECTION B

Writing Skills

30 Marks

- a. Short Answer Questions, e.g., advertisement and notices, designing or drafting posters, writing formal and informal invitations and replies. One question out of the two Short Answer Question – 4 Marks
- b. Long Answer Questions: Letters based on verbal / visual input. One question out of the two Long Answer Question to be answered in 120-200 words 6 Marks

Letter types include

- Business or official letters (for making enquiries, registering complaints, asking for and giving information, placing orders and sending replies)
- Letters to the editor (giving suggestions on an issue or opinion on issue on public interest)
- Application for a job

C Very Long Answer Questions: Two compositions based on visual and/or verbal Output may be descriptive or argumentative in nature such as an article, a debate or a speech or a report. Two very Long Answer Questions containing internal choice, to be answered in 150-200 words (10x 2=20 Marks)

SECTION C

Literature Textbooks

30 Marks

Flamingo and Vistas

- I. Eight Objective Type Questions – 4 from one poetry and 4 from one prose extract to test comprehension and appreciation. (8x1=8 Marks)
- II. Five out of Seven Short Answer Questions based on prose / drama / poetry from both texts (5x2=10 Marks)

III. One out of two Long Answer Questions to be answered in 120-150 words to test global comprehension and extrapolation beyond the texts. (6marks) (Flamingo)

IV. One out of two Long Answer Questions to be answered in 120-150 words to test global comprehension along with analysis and extrapolation. (6marks) (Vistas)

Periodic Assessment

One Paper		1 hour	Marks:25
Section	Area of Learning	Marks specified	
A	Reading Unseen Passages	5	
B	Writing Skills	5	
C	Textual Questions	3+6+3	
	Long answer	3	

Annual Assessment

One Paper		3 hours	Marks : 80
Section	Area of Learning	Marks specified	Allotment of periods
A	Reading Unseen Passages (2)	12+8 =20	30
B	Advanced Writing Skills	4+6+10+10	70
C	Textual Questions		
	Literature Reader- Flamingo		
	Suppl. Reader - Vistas	4+ 4+10+6+6=30	80

Unit wise distribution of syllabus

Unit I

L. Reader : Poem- My mother at 66

(Key Words- ashen, corpse, sprinting, spilling, wan, ache)

Ch.1- The Last Lesson

(Key Words-bustle, unison, solemn, reproach, enslaved, rapt,logical, primer, gesture, thunderclap, apprentice)

S. Reader : Ch 1 The Third Level

(Key words- futuristic, intersection, derby, premium, spittoons, ducked Arched, protectors, apparent, illogicality)

Writing Skills : Advertisement- Classified Ads, Notice writing

Activity : Practice of listening skill

Speech on “ Preserving Language Preserves Identity”

Unit II

L. Reader : Ch.2- Lost Spring

(Key words- scrounging, glibly, bleak, perpetual, periphery, metaphorically, squatters, unkempt, sanctity, apathy, vicious)

S. Reader : Ch.2- The Tiger King

(Key Words-indomitable, transfixed, stupefaction, incoherent, Zbrandishing, catastrophic, imperative, incredible, carcass, summoned, supplication)

Writing Skills : Advertisement- Display Ads, Article writing

Reading Skills : Practice of Unseen Passage & Note Making

Activity : Card Making on Mother’s Day (Work Experience)

Unit III

L. Reader : Poem- An Elementary School Classroom in a Slum

(Key words- gusty, heir, gnarled, capes, azure, cramped)

: Ch.3- Deep Water

(Key Words-phobia, treacherous, misadventure, aversion, bruiser, summoned, oblivion, paralysed, panicky, nightmare, handicap, haunting, terror)

S. Reader : Ch 3 Journey to the end of the Earth

(Key words- immensity, ecosphere, amalgamated, cordillera, desolate, ubiquitous, austral, retreating, phytoplankton, synthesise, assimilate)

Writing Skills : Speech Writing, Job Applications

Reading Skills : Practice of Unseen Passage & Note Making

Activity : Practice of listening skill

Unit IV

L. Reader : Chapter – 4 The Rattrap

(Key words-plods, incredulous, forge, valet, jagged)

S. Reader: Ch.4- The Enemy

(Key Words-stupor, resolution, strewed, repulsion, conviction, retching, ruthless, assassins, stubbornness, execution, prejudice)

Writing Skills : Poster Making (Designing and Drafting of Poster on any given topic), Report Writing

Reading Skills : Practice of unseen passage for Note Making

Activity : Practice of Speaking skill- (Expressing Opinion)

“If you were in Dr. Sadao’s place what would you have done?”

Unit V

L. Reader : Poem – Keeping Quiet

(Key words- exotic, inactivity, truck, interrupt)

Chapter – 5 Indigo

(Key words - delegates, emaciated, tenacity, chided, vehemently)

S. Reader : Chapter – 5 Should Wizard Hit Mommy

(Key words-spell, fatiguing, swamp, fuss, ivory)

Writing Skills : Formal and Informal Invitation and replies.

Business & Official letters

- Reading Skills : Practice of Comprehension Passage
Activity : Practice of Listening & Speaking skill
Speech on “Qualities of a Good Leader”

Unit VI

L. Reader : Ch 6 Poets & Pancakes

(Key words : incandescent, fiery, hued, ignominy, affluent, incriminating, drudge)

S. Reader : Chapter – 6 On the Face of it

(Key words - startled, whispered, peculiar, daft, Steady)

Writing Skills : Speech Writing, Designing and Drafting of Poster, Debate Writing

Reading Skills : Practice of Note Making & Summary

Activity : Practice of Listening & speaking skill

Debate : Everyone should become a vegetarian

Unit VII

L. Reader : Poem – A Thing of Beauty

(Key words-nothingness, dearth, rills, grandeur, brink)

: Ch 7 Interview

(Key words- extravagant, despise, perpetrated, ionized, dissertateion, hypotheses, aesthetics, seminal)

S. Reader : Chapter 7 Evan Tries an O Level

(Key Words : Congenital, Kleptomaniac, Incommunicado, Reiterated, Contemptuous, Amiable, Demeanour, Impersonating)

Writing Skill : Formal and Informal Invitation Writing ,
Formal Letter Writing

Reading Skill : Practice of Unseen Passage

Activity : Practice of listening skill
: Report Writing on Science Symposium in your school

Unit VIII

L. Reader : A Roadside Stand

(Key words - pathetic, marred, swarm, squeal, requisite, quarts)

S. Reader : Chapter 8 Memories of childhood.

(Key Words : Moccasins, Squeaking, Shingled, Indignities, Harangue, Muzzled, Errands, Infuriated, Reverently)

Writing Skill : Formal and Informal Letter Writing, Debate Writing Article Writing

Reading Skills : Practice of Unseen Passage and Note Making

Activity : Poster Making on Eco-friendly Diwali (work experience)

Activity : Practice of listening skill

Unit IX

L. Reader : Poem : Aunt Jennifer's Tigers

(Key words : Prance, Chivalric, Fluttering, Terrified, Ordeals, Panel, Sleek)

Chapter – 8 Going Places

(Key words-scooping, stooped, tinkering, wriggled, freckled)

Writing Skill : Formal and Informal Letter Writing, Speech Writing

Activity : Practice of listening skill

Unit X Revision of Unit 1 &2

Writing Skill : Poster Designing and Drafting, Report Writing

Reading Skill : Practice of Unseen Passage

Activity : Practice of Listening & speaking skill

SYLLABUS -CLASS XII
SUBJECT: MATHEMATICS (041)
SESSION 2019-20

Prescribed Books:

- 1) Mathematics Part I - Textbook for Class XII, NCERT Publication
- 2) Mathematics Part II - Textbook for Class XII, NCERT Publication
- 3) Mathematics Exemplar Problem for Class XII, Published by NCERT
- 4) Mathematics Lab Manual class XII, published by NCERT
- 5) <http://www.ncert.nic.in/exemplar/labmanuals.html>

UNIT – I

Chapter 3-MATRICES

Keywords- Matrix, Order, Transpose, identity matrix, Inverse matrix, Symmetric matrix, Skew symmetric matrix

Contents: 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. Non- commutativity of multiplication of matrices and existence of non-zero matrices whose product is the zero matrix (restrict to square matrices of order 2). Concept of elementary row and column operations. Invertible matrices and proof of the uniqueness of inverse, if it exists; (Here all matrices will have real entries).

Chapter 4 - DETERMINANTS

Keywords- Minor , Cofactor, Adjoint, Unique solution

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

UNIT – II

Chapter 2-Inverse trigonometric functions

Keyword- principal value branch, principal value

Contents: Definition, range, domain, principal value branch. Graphs of inverse trigonometric functions Elementary properties of inverse trigonometric functions.

UNIT – III

Chapter 1-Relations and Functions

Keywords- Relation, equivalence relation, function, domain, range, invertible function, composite function, binary operations, principal value

Contents: Types of relations: reflexive, symmetric, transitive and equivalence relations. One to one and onto functions, composite functions, inverse of a function.

UNIT – IV

Chapter 5- Continuity And Differentiability

Keywords- continuity of a function, differentiability, derivative, implicit and parametric form of a function

Contents: Continuity and differentiability, derivative of composite functions, chain rule, derivative of inverse trigonometric functions, derivative of implicit functions. Concept of exponential and logarithmic functions. Derivatives of logarithmic and exponential functions. Logarithmic differentiation, derivative of functions expressed

in parametric forms. Second order derivatives. Rolle's and Lagrange's Mean Value Theorems (without proof) and their geometric interpretation.

Chapter 6 - Applications Of Derivatives

Key words- Slope, tangent, normal, local maxima and minima, absolute maximum and minimum value

Contents: rate of change of bodies, increasing/decreasing functions, tangents and normals, use of derivatives in approximation, 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).

UNIT – V

Chapter 7- INTEGRALS

Keywords - Integral, definite integral, indefinite integral, partial fraction, area under the curve

Contents: Integration as 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.

$$\int \frac{dx}{x^2 \pm a^2}, \quad \int \frac{dx}{\sqrt{x^2 \pm a^2}}, \quad \int \frac{dx}{\sqrt{a^2 - x^2}}, \quad \int \frac{dx}{\sqrt{ax^2 + bx + c}}, \quad \int \frac{dx}{ax^2 + bx + c}$$

$$\int \frac{px+q}{ax^2+bx+c} dx, \quad \int \frac{px+q}{\sqrt{ax^2+bx+c}} dx, \quad \int \sqrt{a^2 \pm x^2} dx, \quad \int \sqrt{x^2 - a^2} dx$$

$$\int \sqrt{ax^2 + bx + c} dx, \quad \int (px + q) \int \sqrt{ax^2 + bx + c} dx,$$

Definite integrals as a limit of a sum, Fundamental Theorem of Calculus (without proof). Basic properties of definite integrals and evaluation of definite integrals.

UNIT – VI

Chapter 8- APPLICATIONS OF INTEGRALS

Keywords: Area under the curve, area of bounded figures

Contents: Applications in finding the area under simple curves, especially lines, circles/ parabolas/ellipses (in standard form only), Area between any of the two above said curves (the region should be clearly identifiable).

UNIT VII

Chapter 9 - DIFFERENTIAL EQUATIONS

Keywords - order, degree, general solution, particular solution , homogenous differential equation, linear differential equation

Contents: Definition, order and degree, general and particular solutions of a differential equation.formation of differential equation whose general solution is given.Solution of differential equations by method of separation of variables, solutions of homogeneous differential equations of first order and first degree.

Solutions of linear differential equation of the type:

$$\frac{dy}{dx} + py = q, \text{ where } p \text{ and } q \text{ are functions of } x \text{ or constants.}$$

$$\frac{dx}{dy} + px = q, \text{ where } p \text{ and } q \text{ are functions of } y \text{ or constants.}$$

UNIT VIII

Chapter 10- Vectors

Keywords - scalar quantity, vector quantity , scalar product , vector product, scalar triple product, projection of a vector, direction ratio and direction cosines.

Contents: 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, 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, scalar triple product of vectors.

Chapter 11-Three - dimensional Geometry

Contents : Direction cosines and direction ratios of a line joining two points. Cartesian equation and vector equation of a line, coplanar and skew lines, shortest distance between two lines. Cartesian and vector equation of a plane. Angle between (i) two lines, (ii) two planes, (iii) a line and a plane. Distance of a point from a plane.

UNIT – IX

Chapter 12- Linear Programming

Keywords : constraints, objective function, non negative variable, feasible region, non feasible region

Contents: Introduction, related terminology such as constraints, objective function, optimization, different types of linear programming (L.P.) problems, mathematical formulation of L.P. problems, 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 X

Chapter 13- Probability

Keywords: favourable outcome, event, random experiment, total probability, random variable, mean, variance, Bernoulli trials

Contents: Conditional probability, multiplication theorem on probability, independent events, total probability, Bayes' theorem, Random variable and its probability distribution, mean and variance of random variable.

ACTIVITIES: Any 10 activities from the Math Lab Manual published by NCERT.

QUESTION-WISE BREAK-UP

Type of Question	Mark per Question	Total No. of Question	Total Marks
VSA	1	20	20
SA	2	6	12
LA I	4	6	24
LA II	6	4	24
Total		36	80

- No chapter wise weightage. Care to be taken to cover all the chapters
- Suitable internal variations may be made for generating various templates keeping the overall weightage to different form of question and typology of questions same.

Choice (s) :

There will be no overall choice in the question paper.

However, 33% internal choices will be given.

INTERNAL ASSESSMENT	20 Marks
Periodic Test (Best 2 out of 3 tests conducted)	10 marks
Mathematics Activities	10 marks

Note : For activities NCERT Lab Manual may be referred.

Syllabus Class XII
SUBJECT: BIOLOGY (044)

Prescribed Book:

1. Biology, Class XII, Published by NCERT

RATIONALE:

The present syllabus reinforces the ideas introduced till the secondary classes. It provides the students with new concepts along with an extended exposure to contemporary areas of the subject. The syllabus also aims at emphasizing on the underlying principles that are common to both animals and plants as well as highlighting the relationship of biology with other areas of knowledge. The format of the syllabus allows a simple, clear, sequential flow of concepts without any jarring jumps. The syllabus also stresses on making better connections among biological concepts. It relates the study of biology to real life through the use of technology. It links the discoveries and innovations in biology to everyday life such as environment, industry, health and agriculture. The updated syllabus also focuses on reducing the curriculum load while ensuring that ample opportunities and scope for learning and appreciating basic concepts of the subject continue to be available within its framework.

OBJECTIVES:

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

It is expected that the students would get an exposure to various branches of Biology in the syllabus in a more contextual and friendly manner as they study its various units.

THEORY=70 marks

PRACTICAL=30 marks

THEORY

Time: 3 Hours

Max Marks 70

Unit	Title	No. of Periods	Marks
VI	Reproduction	30	14
VII	Genetics and Evolution	40	18
VIII	Biology and Human Welfare	30	14
IX	Biotechnology and its Applications	30	10
X	Ecology and Environment	30	14
	Total	160	70

PRACTICALS

Time allowed: 3 Hours

Max. Marks: 30

Evaluation Scheme	
One Major Experiment Part A	5 Marks
One Minor Experiment Part A	4 Marks
Slide Preparation Part A	5 Marks
Spotting	7 Marks
Practical Record+Viva Voce	4 Marks
Project Record + Viva Voce	5 Marks
Total	30 Marks

BIOLOGY (Code No. 044)
QUESTION PAPER DESIGN

TIME : 3 Hours		Max. Marks : 70					
S. No.	TYPOLGY OF QUESTIONS	VERY SHORT ANSWER VSA 1 MARK	VERY SHORT ANSWER-1 SA-I 2 MARK	Short Answer-II (SA-II) 3 Marks	Long Answer (L.A.) (5 Marks)	Total Marks	% WEIGHTAGE
1.	Remembering (Knowledge based Simple recall questions, to know specific facts, terms, concepts, principles, or theories, define, or recite, information.)	2	1	1	-	7	10%
2.	Understanding (Comprehension-to be familiar with meaning and to understand conceptually, interpret, compare, contrast, explain, paraphrase, or interpret information.)	-	2	4	1	21	30%
3.	Application (Use abstract information in concrete situation, to apply knowledge to new situations, Use given content to interpret a situation, provide an example, or solve a problem)	-	2	4	1	21	30%
4.	Higher Order Thinking Skills (Analysis & Synthesis- Classify, compare, contrast, or differentiate between different pieces of information, Organize and/or integrate unique pieces of information from a variety of sources)	2	1	1	1	12	17%
5.	Evaluation : (Appraise, judge, and/ or justify the value or worth of a decision or outcome, or to predict outcomes based on values)	1	1	2	-	9	13%
TOTAL		5 × 1 = 5	7 × 2 = 14	12 × 3 = 36	3 × 5 = 15	70 (27)	100%

QUESTION WISE BREAK UP

Type of Question	Mark(s) per Question	Total No. of Questions	Total Marks
VSA	1	05	05
SA-I	2	07	14
SA-II	3	12	36
LA	5	3	15
Total		27	70

1. Internal Choice: There is no overall choice in the paper. However, there is an internal choice in 1 mark weightage, 2 marks weightage, 3 marks weightage and 5 marks weightage questions.
2. The above template is only a sample. Suitable internal variations may be made for generating similar templates keeping the overall weightage to different form of questions and typology of questions same.

UNIT WISE SYLLABUS

UNIT-1 Reproduction

(Marks-7)

Keyword: vegetative reproduction, juvenile phase, senescent phase, dioecious, monoecious, pericarp, syngamy, meiocyte.

Content:

Reproduction in organisms: Reproduction, a characteristic feature of all organisms for continuation of species; modes of reproduction; asexual and sexual reproduction; asexual reproduction- binary fission, sporulation, budding, gemmule, fragmentation; vegetative propagation in plants.

Sexual reproduction in flowering plants: flower structure; development of male and female gametophytes; pollination; types, agencies and examples, out breeding devices; pollen pistil interaction; double fertilisations; post fertilization events- development, endosperm and embryo, development of seed and formation of fruit; special modes- apomixis, parthenocarpy, polyembryony; significance of seed dispersal and fruit formation.

Practical:

- Study pollen germination on a slide.
- Controlled pollination- emasculation, tagging and bagging (Spotting).
- Flowers adapted to pollination by different agencies (wind, insect, bird) (Spotting).
- Pollen germination on stigma through permanent slide (spotting).

UNIT-2 Reproduction

(Marks-7)

Keywords: Human reproduction, testis, ovary, gametogenesis, spermatogenesis, oogenesis, follicular atresia, menarche, ovulation, menopause, cleavage, implantation.

Content:

Human reproduction: male and female reproductive system; 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).

Reproductive health: Need for reproductive health and prevention of sexually transmitted diseases (STD); 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).

Practical:

- Study and identify stages of gamete development i.e. T.S. testis and ovary through permanent slide (spotting).
- T.S. of blastula through permanent slide (spotting).

Unit-3 Genetics

(Marks-6)

Keywords: Heredity, Variations, Alleles, Phenotype, Genotype, Homozygote, Heterozygote, Dominant allele, Recessive allele, Pleiotropy, Multiple allelism, Co dominance, Monohybrid, Dihybrid.

Content:

Heredity 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, Chromosome and genes, Sex determination in human, Birds

and honey bee, Linkage and crossing over, Sex linked inheritance, haemophilia, Colour blindness, Thalassemia, Phenylketonuria. Mendelian disorders in humans, Chromosomal disorders in humans Down syndrome, Turners and Klinefelter's syndrome.

Practical (spotting):

- Mendelian inheritance using seeds of different colour, size of any plant.

UNIT-4 Molecular basis of inheritance

Keywords: Replication, ori of replication, Nucleosome, Transcription, Replication fork, Translation, Silent mutations, Frame shift mutation, Operon, DNA probe.

Content: Molecular basis of inheritance (Marks-6)

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 expression and regulation-lac operon, Genome and human and rice genome project, DNA fingerprinting.

Practical:

- Prepare pedigree chart of any one of genetic traits such as rolling of tongue, blood groups, ear lobes, widow's peak and colour blindness (spotting)
- Isolation of DNA from available plant material such as spinach, green pea seeds and papaya etc.

UNIT-5 Evolution (Marks-6)

Keywords: Homologous organs, Analogous organs, Speciation, Genetic drift, Natural selection, Reproductive isolation, Embryology, Paleontology, Convergent evolution, Divergent evolution, Natural selection, Artificial selection.

Content: Evolution

Origin of life, Biological evolution and evidences for biological evolution, Darwin's contribution, Modern synthetic theory of evolution, Mechanism of evolution, variation and natural selection with examples, Types of natural selection, Gene flow and genetic drift, Hardy-weinberg's principle, Adaptive radiation, Human evolution.

Practical:

- Prepare a temporary mount of onion root tip to study mitosis.
- Study various stages of meiosis in onion bud cell or grasshopper testes through permanent slides (spotting).
- To study analogous and homologous organs in various plants and animals.

UNIT-6 Biology and Human Welfare (Marks-6)

Keywords: Pathogens, antibodies, antigens, immunity, interferons, allergy, cancer, metastasis, tumours, retroviruses, drug abuse, adolescence, addiction.

Content:

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

Practical:

- Common disease causing organisms like Ascaris, Entamoeba, Plasmodium, Roundworm through permanent slides or specimens Comment on symptoms of disease (spotting).

Activity: On AIDS days- Poster making or A Visit to hospital.

UNIT-7 Biology and Human welfare (Marks-8)

Keywords: Plant breeding, germplasm, apiculture, somaclones, explant, implant, plant tissue culture, biofortification Prions, fermentors, Flocs, antibiotics, biogas, Baculo viruses .

Content:

Improvement in food production: Plant breeding, tissue culture, single cell protein, Biofortification, Apiculture and animal husbandry

Microbes in human welfare: In household food processing, industrial production, sewage treatment, energy generation and as biocontrol agents and biofertilizers.

Practical:

- Study the effect of different temperatures and three different pH on the activity of salivary amylase on starch.

UNIT-8 Biotechnology

(Marks-10)

Keywords: Transgenic, gene cloning, plasmid, recombinant DNA, recognition site, palindromes, electroporation, gene therapy, microinjection, gene gun.

Content:

Principles and processes of biotechnology: Genetic Engineering (Recombinant DNA Technology).

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

Practical:

- Isolation of DNA from plant material such as spinach, green pea seed, papaya etc.

UNIT-9 Ecology

(Marks-7)

Keywords: Habitat, Niche, ecosystem, Birth rate, Mortality rate, Primary succession, climax community, obligate parasites 10% law, Mutualism.

Content:

Organism and environment: Habitat and niche, Population and ecological adaptation, Population interactions; mutualism, competition, Predation, Parasitism, Population attributes, growth rate and birth rate, age distribution.

Ecosystem: Patterns components, Productivity and decomposition, Energy flow, Pyramids of number, Biomass, Nutrient cycles, Ecological succession, Ecological services, Carbon fixation, Pollination, Seed dispersal, oxygen release.

Practical :

- Collect and study soil from at least two different sites and study them for texture moisture content, PH and water holding capacity. Correlate with the kinds of plants found in them.
- Study of plant population density and population frequency by quadrat method.
- Two plants and two animals (models/virtual images) found in xeric conditions and in aquatic condition. Comment upon their morphological adaptation.

Activity: On nature conservation day- Tree plantation and poster making.

UNIT-10 Environment**(Marks-7)**

Keyword: Biodiversity hotspots, endangered animals, Biosphere e-waste, Nuclear waste, Aforestation, Ozone depletion, Global warming, sacred forests, Cryopreservation.

Content:

Biodiversity and its conservation: Concept of biodiversity; patterns of biodiversity; importance of biodiversity; loss of biodiversity; biodiversity conservation; hotspots, endangered organisms, extinction, Red Data Book, biosphere reserves, national parks and sanctuaries and Ramsar sites

Environmental issues: Air pollution and its control; water pollution and its control, agrochemicals and their effects; solid waste management; greenhouse effect and global warming; Impact and mitigation, ozone depletion; Deforestation; any three case studies as success stories addressing environmental issues, diseases:

Practical:

- Collect water from two different water bodies around you and study them for PH, clarity and presence of any living organisms.
- Study the presence of suspended particulate matter in air at two widely different sites

PHYSICS
Class XII (Code No. 042)

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 the interface of Physics with other disciplines.

CLASS XII (2019-20)
(THEORY)

Time: 3 hrs.

Max Marks: 70

		No. of Periods	Marks
Unit-I	Electrostatics	22	16
	Chapter-1: Electric Charges and Fields		
	Chapter-2: Electrostatic Potential and Capacitance		
Unit-II	Current Electricity	20	
	Chapter-3: Current Electricity		
Unit-III	Magnetic Effects of Current and Magnetism	22	17
	Chapter-4: Moving Charges and Magnetism		
	Chapter-5: Magnetism and Matter		
Unit-IV	Electromagnetic Induction and Alternating Currents	20	
	Chapter-6: Electromagnetic Induction		
	Chapter-7: Alternating Current		
Unit-V	Electromagnetic Waves	04	
	Chapter-8: Electromagnetic Waves		
Unit-VI	Optics	27	18
	Chapter-9: Ray Optics and Optical Instruments		
Unit -VII	Chapter-10: Wave Optics		
Unit-VIII	Dual Nature of Radiation and Matter	08	12
	Chapter-11: Dual Nature of Radiation and Matter		
Unit- IX	Atoms and Nuclei	15	
	Chapter-12: Atoms		
	Chapter-13: Nuclei		
Unit-X	Electronic Devices	12	7
	Chapter-14: Semiconductor Electronics: Materials, Devices and Simple Circuits		
Total		150	70

Unit I: Electrostatics

22 Periods

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 polarisation, 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.

PRACTICAL: 1. To determine resistance per cm of a given wire by plotting a graph for potential difference versus current.

Unit II : Current Electricity

20 Periods

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, energy and power, electrical resistivity and conductivity, Carbon resistors, colour code for carbon resistors; series and parallel combinations of resistors; 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 laws and simple applications, Wheatstone bridge, metre bridge.

Potentiometer - principle and its applications to measure potential difference and for comparing EMF of two cells; measurement of internal resistance of a cell.

PRACTICAL: 2. To find resistance of a given wire using metre bridge and hence determine the resistivity (specific resistance) of its material.

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

Unit III: Magnetic Effects of Current and Magnetism **22 Periods**

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 and toroidal solenoids (only qualitative treatment), force on a moving charge in uniform magnetic and electric fields, Cyclotron.

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; moving coil galvanometer-its current sensitivity and conversion to ammeter and voltmeter.

Chapter-5: Magnetism and Matter

Current loop as a magnetic dipole and its magnetic dipole moment, magnetic dipole moment of a revolving electron, magnetic field intensity due to a magnetic dipole (bar magnet) along its axis and perpendicular to its axis, torque on a magnetic dipole (bar magnet) in a uniform magnetic field; bar magnet as an equivalent solenoid, magnetic field lines; earth's magnetic field and magnetic elements.

Para-, dia- and ferro - magnetic substances, with examples. Electromagnets and factors affecting their strengths, permanent magnets.

PRACTICAL: 4.To verify the laws of combination (parallel) of resistances using a metre bridge.

5.To compare the EMF of two given primary cells using potentiometer.

Unit IV: Electromagnetic Induction and Alternating Currents 20 Periods

Chapter–6: Electromagnetic Induction

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

Chapter–7: Alternating Current

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

AC generator and transformer.

PRACTICAL: 6.To determine the internal resistance of given primary cell using potentiometer.

Unit V: Electromagnetic waves 04 Periods

Chapter–8: Electromagnetic Waves

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

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

PRACTICAL: 7.To determine resistance of a galvanometer by half-deflection method and to find its figure of merit.

8.To convert the given galvanometer (of known resistance and figure of merit) into a voltmeter of desired range and to verify the same.

Unit VI : Optics

27 Periods

Chapter–9: Ray Optics and Optical Instruments

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

Scattering of light - blue colour of sky and reddish appearance of the sun at sunrise and sunset.

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

PRACTICAL: 9.To convert the given galvanometer (of known resistance and figure of merit) into an ammeter of desired range and to verify the same.

10. To find the value of v for different values of u in case of a concave mirror and to find the focal length.

UNIT – VII: 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, coherent sources and sustained interference of light, diffraction due to a single slit, width of central maximum, resolving power of microscope and astronomical telescope, polarisation, plane polarised light, Brewster's law, uses of plane polarised light and Polaroids.

PRACTICAL: 11. To find the focal length of a convex mirror, using a convex lens.
12. To find the focal length of a convex lens by plotting graphs between u and v or between $1/u$ and $1/v$.

Unit VIII: Dual Nature of Radiation and Matter

08 Periods

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.

Matter waves-wave nature of particles, de-Broglie relation, Davisson-Germer experiment (experimental details should be omitted; only conclusion should be explained).

PRACTICAL: 13. To find the focal length of a concave lens, using a convex lens.

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

Unit IX: Atoms and Nuclei

15 Periods

Chapter–12: Atoms

Alpha-particle scattering experiment; Rutherford's model of atom; Bohr model, energy levels, hydrogen spectrum.

Chapter–13: Nuclei

Composition and size of nucleus, Radioactivity, alpha, beta and gamma particles/ rays and their properties; radioactive decay law.

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

PRACTICAL: 15. To draw the I-V characteristic curve for a p-n junction in forward bias and reverse bias.

16. To draw the characteristic curve of a zener diode and to determine its reverse breaks down voltage.

Unit X: Electronic Devices

12Periods

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

Energy bands in conductors, semiconductors and insulators (qualitative ideas only)

Semiconductor diode - I-V characteristics in forward and reverse bias, diode as a rectifier;

Special purpose p-n junction diodes: LED, photodiode, solar cell and Zener diode and their characteristics, zener diode as a voltage regulator

ACTIVITIES: 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 draw the diagram of a given open circuit comprising at least a battery, resistor/rheostat, key, ammeter and voltmeter. Mark the components that are not connected in proper order and correct the circuit and also the circuit diagram.

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

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

PRACTICALS

(Total Periods 60)

The record to be submitted by the students at the time of their annual examination has to include:

- Record of at least 15 Experiments [with a minimum of 6 from each section], to be performed by the students.
- Record of at least 5 Activities [with a minimum of 2 each from section A and section B], to be demonstrated by the teachers.
- The Report of the project to be carried out by the students.

Evaluation Scheme

Time Allowed: Three hours

Max. Marks: 30

Two experiments one from each section	8+8 Marks
Practical record [experiments and activities]	6 Marks
Investigatory Project	3 Marks
Viva on experiments, activities and project	5 Marks
Total	30 marks

Prescribed Books:

1. Physics, Class XI, Part -I and II, Published by NCERT.
2. Physics, Class XII, Part -I and II, Published by NCERT.
3. Laboratory Manual of Physics for class XII Published by NCERT.
4. The list of other related books and manuals brought out by NCERT (consider multimedia also)

Maximum Marks: 70

Duration: 3 hrs.

S	Typology of Questions	VSA-Objective Type (1 mark)	SA (2 marks)	LA-I (3 marks)	LA-II (5 marks)	Total Marks	Percentage
1	Remembering: Exhibit memory of previously learned material by recalling facts, terms, basic concepts, and answers.	2	2	1	-	9	12%
2	Understanding: Demonstrate understanding of facts and ideas by organizing, comparing, translating, interpreting, giving descriptions, and stating main ideas	6	2	2	1	21	30%
3	Applying: Solve problems to new situations by applying acquired knowledge, facts, techniques and rules in a different way.	6	2	1	2	23	33%
4	Analysing and Evaluating: Examine and break information into parts by identifying motives or causes. Make inferences and find evidence to support generalizations Present and defend opinions by making judgments about information, validity of ideas, or quality of work based on a set of criteria.	6	1	2	-	14	20%
5	Creating: Compile information together in a different way by combining elements in a new pattern or proposing alternative solutions.	-	-	1	-	3	5%
	Total	20x1=20	7x2=14	7x3=21	3x5=15	70	100

Practical: 30 Marks

Note:

1. Internal Choice: There is no overall choice in the paper. However, there will be at least 33% internal choice.
2. The above template is only a sample. Suitable internal variations may be made for generating similar templates keeping the overall weightage to different form of questions and typology of questions same.

SUBJECT – CHEMISTRY

SUBJECT CODE 043

CLASS 12TH

Prescribed Books:

1. Chemistry Part -I, Class-XII, Published by NCERT.
2. Chemistry Part -II, Class-XII, Published by NCERT.

Rationale

Higher Secondary is the most crucial stage of school education because at this juncture specialized discipline based, content -oriented courses are introduced. Students reach this stage after 10 years of general education and opt for Chemistry with a purpose of pursuing their career in basic sciences or professional courses like medicine, engineering, technology and other applied areas. Therefore, there is a need to provide learners with sufficient conceptual background of Chemistry, which will make them competent to meet the challenges of academic and professional courses after the senior secondary stage.

The new and updated curriculum is based on disciplinary approach with rigour and depth taking care that the syllabus is not heavy and at the same time it is comparable to the international level. The knowledge related to the subject of Chemistry has undergone tremendous changes during the past one decade. Many

new areas like synthetic materials, bio -molecules, natural resources, industrial chemistry are coming in a big way and deserve to be an integral part of chemistry syllabus at senior secondary stage. At international level, new formulations and nomenclature of elements and compounds, symbols and units of physical quantities floated by scientific bodies like IUPAC and CGPM are of immense importance and need to be incorporated in the updated syllabus. The revised syllabus takes care of all these aspects. Greater emphasis has been laid on use of new nomenclature, symbols and formulations, teaching of fundamental concepts, application of concepts in chemistry to industry/ technology, logical sequencing of units, removal of obsolete content and repetition, etc.

OBJECTIVES

The curriculum of Chemistry at Senior Secondary Stage aims to:

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

- develop an interest in students to study chemistry as a discipline.
- integrate life skills and values in the context of chemistry.

CLASS XII (2019-20)

THEORY

Total Periods (Theory 160 + Practical 80)

Time: 3 Hours

Max. Marks 70

Unit No.	Title	No. of Periods	Marks
Unit I	Solutions	10	23
Unit II	Electrochemistry	12	
	Chemical Kinetics	10	
Unit III	Surface Chemistry	08	19
	General Principles and Processes of Isolation of Elements	08	
Unit IV	p -Block Elements	14	
Unit V	d -and f -Block Elements	12	
	Coordination Compounds	12	28
Unit VI	Haloalkanes and Haloarenes	12	
Unit VII	Alcohols, Phenols and Ethers	12	
Unit VIII	Aldehydes, Ketones and Carboxylic Acids	14	
Unit IX	Organic Compounds containing Nitrogen	12	
	Biomolecules	12	
Unit X	Polymers	06	
	Chemistry in Everyday Life	06	70
	Total	160	

PRACTICAL DISTRIBUTION (Evaluation Scheme)

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

FEW SUGGESTED PROJECTS:

Scientific investigations involving laboratory testing and collecting information from other sources.

A few suggested Projects.

- Study of the presence of oxalate ions in guava fruit at different stages of ripening.
- Study of quantity of casein present in different samples of milk.
- Preparation of soybean milk and its comparison with the natural milk with respect to curd formation, effect of temperature, etc.
- Study of the effect of Potassium Bisulphate as food preservative under various conditions (temperature, concentration, time, etc.)
- Study of digestion of starch by salivary amylase and effect of pH and temperature on it.
- Comparative study of the rate of fermentation of following materials: wheat flour, gram flour, potato juice, carrot juice, etc.
- Extraction of essential oils present in Saunf (aniseed), Ajwain (carum), Illaichi (cardamom).

- Study of common food adulterants in fat, oil, butter, sugar, turmeric powder, chilli powder and pepper.

Note: Any other investigatory project, which involves about 10 periods of work, can be chosen with the approval of the teacher.

S. No.	Typology of Questions	Very Short Answer-Objective type (VSA) (1 Mark)	Short Answer-I (SA) (2Marks)	Long Answer-I (LA-I) (3 marks)	Long Answer- II (LA-II) (5 marks)	Total Marks	% Weight-age
1	Remembering : Exhibit memory of previously learned material by recalling facts, terms, basic concepts and answers.	2	1	1	-	7	10%
2	Understanding : Demonstrate understanding of facts and ideas by organizing, comparing, translating, interpreting, giving descriptions and stating main ideas.	6	2	2	1	21	30%
3	Applying: Solve problems to new situations by applying acquired knowledge, facts, techniques and rules in a different way.	6	2	2	1	21	30%
4	Analyzing : Examine and break information into parts by identifying motives or causes. Make inferences and find evidence to support generalizations.	6	1	2	-	14	20%

	<p>Evaluating:</p> <p>Present and defend opinions by making judgments about information, validity of ideas or quality of work based on a set of criteria.</p> <p>Creating:</p> <p>Compile information together in a different way by combining elements in a new pattern or proposing alternative solutions.</p>						
		-	1	-	1	7	10%
	TOTAL	20x1=20	7x2=14	7x3=21	3x5=15	70(37)	100%

QUESTION WISE BREAK UP

Type of Question	Mark per Question	Total No. of Questions	Total Marks
VSA/ Objective	1	20	20
SA	2	7	14
LA-I	3	7	21
LA-II	5	3	15
Total		37	70

1. No chapter wise weightage. *Care to be taken to cover all the chapters.*
2. *Suitable internal variations may be made for generating various templates keeping the overall weightage to different form of questions and typology of questions same.*

Choice(s):

There will be no overall choice in the question paper. However, 33 % internal choices will be given in all the sections.

QUESTION WISE BREAK UP(PERIODIC ASSESMENT)

Type of Question	Mark(s) per Question	Total No. of Questions	Total Marks
VSA	1	4	4
SA-I	2	5	10
SA-II	3	2	6
LA	5	1	5
Total		12	25

SYLLABUS:**UNIT 1 Solutions****(10 Periods)**

Types of solutions, expression of concentration of solutions of solids in liquids, solubility of gases in liquids, solid solutions, colligative properties - relative lowering of vapour pressure, Raoult's law,

elevation of boiling point, depression of freezing point, osmotic pressure, determination of molecular masses using colligative properties, abnormal molecular mass, Van't Hoff factor.

KEY WORDS-Osmotic pressure , Depression of freezing point ,Elevation of boiling point Azeotropes, Raoult's law , Henry's Law , Normality , Molarity , Molality, Mole fraction, ideal and non-ideal solution, colligative property, molal elevation constant or ebullioscopic constant, molal depression constant or molal cryoscopic constant., endo-osmosis, exo-osmosis, isotonic solutions.

Practical: Determination of concentration/ molarity of KMnO_4 solution by titrating it against a standard solution of:

- (i) Oxalic acid ii) Ferrous Ammonium Sulphate

(Students will be required to prepare standard solutions by weighing themselves)

Unit II: Electrochemistry **(12 Periods)**

Redox reactions, 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, 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, fuel cells, corrosion.

KEY WORDS : Cathodic protection, Faraday's first law of electrolysis , Equivalent conductivity, Faraday's second law of electrolysis, Molar conductivity, Electro chemical series, Equivalent conductance, Specific conductance. strong and weak electrolytes, Electrochemical cell, Electrolytic cell, conductance, specific conductance.

Chemical Kinetics **(10 Periods)**

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.

KEY WORDS Differential rate law, Integrated rate equation ,The rate law, Rate determining step , Activated complex , Activation energy , Half- life of a reaction Order of a reaction , Molecularity , Rate constant, threshold energy, law of mass action.

Practical: Preparation of double salt of Ferrous Ammonium Sulphate or Potash Alum.

Unit III: Surface Chemistry**(08 Periods)**

Adsorption - physisorption and chemisorption, factors affecting adsorption of gases on solids, catalysis, homogenous and heterogenous activity and selectivity; enzyme catalysis colloidal state distinction between true solutions, colloids and suspension; lyophilic, lyophobic multimolecular and macromolecular colloids; properties of colloids; Tyndall effect, Brownian movement, electrophoresis, coagulation, emulsion - types of emulsions.

KEY WORDS Activators, Zeolites, Peptization, Multimolecular, Lyophilic, Lyophobic, Multimolecular colloid, Macromolecular colloid, Sol and Gel, Emulsions, Hardy-Schulze rule, Brownian movement, Electrophoresis, Tyndall effect, gold number, coagulation, adsorbent, adsorbate, adsorption isobar, zeolites, micelles.

General Principles and Processes of Isolation of Elements (08 Periods)

Principles and methods of extraction - concentration, oxidation, reduction - electrolytic method and refining; occurrence and principles of extraction of aluminium, copper, zinc and iron.

KEY WORDS- Ellingham diagrams, Reduction reaction, Reducing agent, Calcination, Roasting, Mond's process, Slag, gangue, van Arkel process, smelting, leaching, cast iron, pig iron

Practical: Preparation of one lyophilic and one lyophobic sol

Lyophilic sol - starch, egg albumin and gum

Lyophobic sol - aluminium hydroxide, ferric hydroxide, arsenous sulphide

Unit IV: "p"-Block Elements**(12 Periods)**

Group 16 Elements: General introduction, electronic configuration, oxidation states, occurrence, trends in physical and chemical properties, dioxygen: Preparation, Properties and uses, classification of Oxides, Ozone, Sulphur -allotropic forms; compounds of Sulphur: Preparation Properties and uses of Sulphur-dioxide,

Sulphuric Acid: industrial process of manufacture, properties and uses; Oxoacids of Sulphur (Structures only).

Group 17 Elements: General introduction, electronic configuration, oxidation states, occurrence, trends in physical and chemical properties; compounds of halogens, Preparation, properties and uses of Chlorine and Hydrochloric acid, interhalogen compounds, Oxoacids of halogens (structures only).

Group 18 Elements: General introduction, electronic configuration, occurrence, trends in physical and chemical properties, uses.

KEY WORDS- Oxidation state, Atomic size, Ionization enthalpy, Electro negativity, Disproportionation reaction, Aerosols Electro negativity, Hydrogen bonding, Inert pair effect, bonding., interhalogens, pseudohalides.

Practical: To distinguish carbohydrates, fats and proteins.

Unit V: “d” and “f” Block Elements (12 Periods)

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 $K_2Cr_2O_7$ and $KMnO_4$

Lanthanoids - Electronic configuration, oxidation states, chemical reactivity and lanthanoid contraction and its consequences. Actinoids - Electronic configuration, oxidation states and comparison with lanthanoids.

KEY WORDS- Actinoid contraction, Magnetic moment, Reducing agent, oxo anions, Amphoteric nature, Disproportionation reaction, Interstitial compounds Enthalpies of atomization, Lanthanoid contraction, Baeyer's reagent, coinage metals.

Coordination Compounds (12 Periods)

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, importance of coordination compounds (in qualitative inclusion, extraction of metals and biological system).

KEY WORDS Co-ordination compounds, Co-ordination Complex, Co-ordination Sphere, Double salts, Crystal field splitting energy (CFSE), Diamagnetic, Ligand, Chelate, Chelating effect, Coordination number, Ligand, Ionisation Isomerism, Linkage Isomerism, Hydration Isomerism, Coordination Isomerism, Cis & Trans Isomerism, Facial & Meridian Isomerism.

Practical: Chromatography

Separation of pigments from extracts of leaves and flowers by paper chromatography and determination of R_f values.

Unit VI: Haloalkanes and Haloarenes. (10 Periods)

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

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.

KEY WORDS Achiral, alkyl halides, allylic halides, ambident nucleophiles, carbocation, DDT, dextrorotatory, diazonium salts, electrophilic substitution, elimination reaction, Freon refrigerant geminal halides, grignard reagent, optically active, stereo centre.

Practical: Tests for the functional groups present in organic compounds: Unsaturation, alcoholic, phenolic, aldehydic, ketonic, carboxylic and amino (Primary) groups.

Unit VII: Alcohols, Phenols and Ethers (10 Periods)

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, acidic nature of phenol, electrophilic substitution reactions, uses of phenols.

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

KEY WORDS Acidity, Aromatic ring, Benzylic alcohols, Cumene, Dehydrogenation, Electrophilic aromatic substitution, Polyhydric compounds, Vinylic alcohol, ferric chloride test for phenols. iodoform test, lucas test.

Unit VIII: Aldehydes, Ketones and Carboxylic Acids (10 Periods)

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.

KEY WORDS Aldehydes, Phenol, benzoic acid, Benzophenone, Acetophenone, Benzaldehyde, Acetaldehyde, Electrophilic substitution, Inductive Effect, Aldol Condensation, Alkyl benzenes, Bayer's reagent, Electron donating groups, Electron withdrawing groups, Ozonolysis, Polarity, Cannizzaro reaction,

cross-aldol condensation, tollen's test, Fehling's test, ester test, acetal, cyanohydrin, ketal, oxime, imine.

Practical: Determination of one cation and one anion in a given salt.

(Note: Insoluble salts excluded)

Unit IX: Organic compounds containing Nitrogen (10 Periods)

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

Cyanides and Isocyanides - will be mentioned at relevant places in text.

Diazonium salts: Preparation, chemical reactions and importance in synthetic organic chemistry.

KEY WORDS Zwitter ion Aniline Nitration Ammonolysis Primary, secondary and tertiary amines. Aromatic amines Quaternary ammonium salts, acylation, ammonolysis, carbylamine, diazotization, azo dye.

Biomolecules (12 Periods)

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.

KEY WORDS Aldopentose, amino acids, amylopectin, amylase, animal starch, oligosaccharides, polysaccharides denaturation of proteins, globular proteins, nucleoside, nucleotide, peptide linkage, Zwitter ion.

Practical: Determination of one cation and one anion in a given salt.

Unit X: Polymers (08 Periods)

Classification - natural and synthetic, methods of polymerization (addition and condensation), copolymerization, some important polymers: natural and synthetic like polythene, nylon polyesters, bakelite, rubber. Biodegradable and non-biodegradable polymers.

KEY WORDS Biodegradable polymers, chain initiating step, chain propagating step chain terminating step, copolymers, Ziegler – Natta catalyst, vulcanization of rubber, cross-linked polymer, fibres, elastomers, thermosetting polymer, thermoplastic polymer.

Chemistry in Everyday life (06 Periods)

Chemicals in medicines - analgesics, tranquilizers antiseptics, disinfectants, antimicrobials, antifertility drugs, antibiotics, antacids, antihistamines.

Chemicals in food - preservatives, artificial sweetening agents, elementary idea of antioxidants.

Cleansing agents- soaps and detergents, cleansing action.

KEY WORDS Active site, allosteric site, analgesics, antacids, broad spectrum antibiotics, limited spectrum antibiotics, narrow spectrum antibiotics, antifertility, antihistamine, antimicrobial, antipyretic, bactericidal, bacteriostatic, antiseptic, disinfectants, narcotic drugs, non-narcotic drugs, anti-depressants.

Practical- Preparation of any one of the following compounds-

- i) Acetanilide ii) Di-benzal Acetone iii) p-Nitroacetanilide
- iv) Aniline yellow or 2 - Naphthol Aniline dye

Accountancy (Code 055)
Class–XII (2019-20)

Prescribed Books:

Accountancy I	Class XII	NCERT Publication
Accountancy II	Class XII	NCERT Publication

Rationale

The course in Accountancy is introduced at +2 stage of Senior Secondary education, as formal commerce education is provided after first ten years of schooling. With the fast changing economic scenario and business environment in a state of continuous flux, elementary business education along with accountancy as the language of business and as a source of financial information has carved out a place for itself at the Senior Secondary stage.

Its syllabus content should give students a firm foundation in basic accounting principles and methodology and also acquaint them with the changes taking place in the presentation and analysis of accounting information, keeping in view the development of accounting standards and use of computers.

Against this background, the course puts emphasis on developing basic understanding about the nature and purpose of the accounting information and its use in the conduct of business operations. This would help to develop among student's logical reasoning, careful analysis and considered judgment. Accounting as an information system aids in providing financial information. The emphasis at Class XI is placed on basic concepts and process of accounting leading to the preparation of accounts for a sole proprietorship firm. Computerized accounting is becoming more and more popular with increasing awareness about use of computers in business.

Keeping this in view, the students are exposed compulsorily to the basic knowledge about computers and its use in accounting in the same year. In class XII, Accounting for Partnership Firms and Companies are to be taught as a compulsory part. Students will also be given an opportunity to understand further about Computerized Accounting System, as an optional course to Analysis of Financial Statements.

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 analyze the financial statements; and
- To familiarize students with the fundamentals of computerized system of accounting.

Distribution**100 Marks**

UNITS	PERIODS	MARKS
UNIT-1 Accounting for Partnership firms- Fundamentals	22	6
UNIT-2 Accounting for Partnership firms- Goodwill and Change in profit sharing ratio among existing partners	22	6
UNIT-3 Accounting for Partnership firms- Admission of a partner	24	8
UNIT-4 Retirement and Death of a partner	22	6
UNIT-5. Dissolution of Partnership firms	22	4
UNIT-6 Financial Statements of Not For Profit Organizations	25	10
UNIT-7 Accounting for share capital	40	12
UNIT-8 Accounting for Debentures-Issue and Redemption	20	8
UNIT-9 Analysis of Financial Statements and Accounting Ratios	30	12
UNIT-10 Cash Flow Statements and Project Work	60	28

Project work will include:**Project File: 4 Marks****Written Test: 12 Marks (One Hour)****Viva Voce: 4 Marks****UNIT TEST****MARKS-25**

1 Mark: (5 questions)

3 Marks: (2 questions)

6 Marks: (1question)

8 Marks: (1 question)

TERMINAL EXAMINATION**MARKS-80**

1 Mark: (20 questions)

3 Marks: (02 questions)

4 Marks: (05 question)

6 Marks: (03 questions)

8 Marks: (02 questions)

Suggested Question Paper Design**Accountancy (Code No. 055) Class XII (2019 - 20)**

Marks: 80		Duration: 3 hrs.					Marks
SN	Typology of Questions	Objective Type/ MCQ 1 Mark	Short Answer I 3 Marks	Short Answer II 4 Marks	Long Answer I 5 Marks	Long Answer II 6 Marks	
1	Remembering: Exhibit memory of previously learned material by recalling facts, terms, basic concepts, and answers.	5	1	1	1	-	18
2	Understanding: Demonstrate understanding of facts and ideas by organizing, comparing, translating, interpreting, giving descriptions, and stating main ideas	5	1	1	1	1	26
3	Applying: Solve problems to new situations by applying acquired knowledge, facts, techniques and rules in a different way.	5		2	1	-	19
4	Analysing and Evaluating: Examine and break information into parts by identifying motives or causes. Make inferences and find evidence to support generalizations. Present and defend opinions by making judgments about information, validity of ideas, or quality of work based on a set of criteria. Creating: Compile information together in a different way by combining elements in a new pattern or proposing alternative solutions.	5	-	1	-	1	17
Total		20×1=20	2×3=6	5×4=20	3×6=18	2×8=16	80(32)

There will be internal choice in questions of 3 marks, 4 marks, 6 marks and 8 marks. All questions carrying 8 marks will have an internal choice.

Note : The Board has introduced Learning Outcomes in the syllabus to motivate students to constally explore all levels of learning. However these are only indicate. These do not in any way restrict the scope of questions asked in the examinations. The examination questions will be strictly based on the prescribed question paper design and syllabus.

Note : The Board has introduced Learning Outcomes in the syllabus to motivate students to constantly explore all levels of learning. However these are only indicate. These do not in any way restrict the scope of questions asked in the examinations. The examination questions will be strictly based on the prescribed questions paper design and syllabus.

Unit-1 Accounting for Partnership Firms- Fundamentals **22 Periods**

Technical words :

(Partnership Deed, Fixed Capital, Fluctuating Capital, Interest on Capital, Interest on Drawings, Past Adjustment, Goodwill)

- 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 & 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).

UNIT - 2 Accounting for Partnership Firms-

2 (A) Goodwill **15 Periods**

Goodwill: nature, factors affecting and methods of valuation - average profit, super profit and capitalization.

- Goodwill to be adjusted through partners' capital/current accounts or by raising or writing off Goodwill. (AS 26).

2(B) Change in Profit Sharing Ratio

- Change in the Profit Sharing Ratio among the existing partners - sacrificing ratio, gaining ratio. Accounting for revaluation of assets and re-assessment of

liabilities and distribution of reserves and accumulated profits. Preparation of revaluation a/c and Balance Sheet.

ACTIVITY

Quiz based on Unit 1 and Unit 2

UNIT-3 Accounting for Partnership firms- Admission of a partner 14 Periods

Technical words:

(Admission, Sacrificing Ratio Gaining Ratio, Premium, Reserves, Funds, Adjustment of Capital.)

- 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 and accumulated profits, adjustment of capital accounts and preparation of balance sheet.

UNIT-4 Retirement and Death of a partner

22 Periods

Technical words:

(Retirement, Death, Executor Account, Accumulated Profits, Loan Account.)

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 re -assessment of liabilities, adjustment of accumulated profits and reserves, adjustment of capital accounts and preparation of 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, executor's account and preparation of balance sheet.

ACTIVITY Presentation on treatment of Goodwill, Reserves and accumulated profits and losses .

UNIT-5 Dissolution of Partnership firms

22 Periods

Technical words:

(Dissolution, Realization Account, Reassessment, Memorandum Balance Sheet.)

Meaning of Dissolution of Partnership and Partnership Firm, Types of dissolution of firm. Settlement of accounts - preparation of realization account, and other related accounts (excluding piecemeal distribution, sale to a company and B

Note : (i) The realized value of each asset must be given at the time of Dissolution.
(ii) In case, the realization expenses are borne by a partner, clear indication should be given regarding the payment thereof.

UNIT-6 Financial Statements of Not For Profit Organizations 20 Periods

Financial Statements of Not-for-Profit Organizations

- Not-for-profit organizations: concept.
- Receipts and Payments Account: features and preparation.
- Income and Expenditure Account: features, preparation of income and expenditure account and balance sheet from the given receipts and Payments account with additional information

UNIT-7 Accounting for share capital 40 Periods

Technical words:

(Equity Share, Preference Share, Authorized Share Capital, Forfeiture, Pro-rata, Reissue, Calls in arrears, Calls in Advance, Vendor.)

- Share and share capital: nature and types.
- Accounting for share capital: issue and allotment of equity shares and preference 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 of shares and Employee Stock Option Plan (ESOP)

- Accounting treatment of forfeiture and re-issue of shares.
- Disclosure of share capital in company's Balance Sheet.

ACTIVITY

Disclosure of Share Capital in Balance Sheet of a company of NSE/BSE (any one company) along with preparation of Notes to Accounts for Share Capital

UNIT-8 Accounting for Debentures-Issue and Redemption 20 Periods

Technical words:

(Debentures, Redemption, Collateral Security, Purchase Consideration.)

- Debentures: Issue of debentures at par, at premium and at 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 shares.
- Redemption of debentures: Lump sum, draw of lots, Creation of Debenture Redemptions Reserve, Debenture Redemption Investment.
- Discount or loss on issue of Debentures to be written off in the year Debentures are allotted from security premium reserve (if it exist) and then from statement of Profit and Loss as financial cost.(AS 16).

ACTIVITY

Presentation of Debentures, Collateral Security in a company Balance Sheet through file work.

UNIT-9 Analysis of Financial Statements and Accounting Ratios 30 Periods

Financial statements of a company: Statement of Profit and Loss and Balance Sheet in the prescribed form with major headings and sub headings (as per Schedule III to the Companies Act, 2013).

Tools for Financial Statement Analysis: Comparative statements, common size statements, cash flow analysis, ratio analysis.

Accounting Ratios: Meaning, Objectives, 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.

Activity Ratios: Stock Turnover Ratio, Debtors Turnover Ratio, (Trade Receivables Turnover Ratio) Creditors Turnover Ratio (Trade payables turnover Ratio) and Working Capital Turnover Ratio.

Profitability Ratios: Gross Profit Ratio, Operating Ratio, Operating Profit Ratio, Net Profit Ratio(calculated on the basis of profit before and after tax) and Return on Investment.

ACTIVITY

Calculation of Ratios through Comparative and Common Size Statements of a company.

Unit 10: Cash Flow Statement

20 Periods

Technical words:

(Cash flow, Inflow, Outflow, Investing Activities, Operating Activities, Financing Activities, Cash and Cash Equivalents.)

Meaning, objectives and preparation (as per AS 3 (Revised) (Indirect Method only)

Adjustments relating to depreciation and amortization, profit or loss on sale of assets including investments, dividend (both final and interim) and tax.

Bank overdraft and cash credit to be treated as a component as short term borrowings, current investment to be taken as marketable securities unless otherwise specified.

ACTIVITY:

Analyzing Cash flow Statement of a Company.

Project Work

40 Periods

- a) Comprehensive
- b) Specific- (Ratio and Cash flow Statement)
- c) Segment Analysis

ECONOMICS (CODE 030)

CLASS - XII

Prescribed Books:

1. Introductory Macro Economics, Class XII, NCERT
2. Indian Economic Development, Class XII, NCERT
3. Supplementary Reading Material in Economics, Class XII, CBSE

Rationale

Economics is one of the social sciences, which has great influence on every human being. As economic life and the economy go through changes, the need to ground education in children's own experience becomes essential. While doing so, it is imperative to provide them opportunities to acquire analytical skills to observe and understand the economic realities. At senior secondary stage, the learners are in a position to understand abstract ideas, exercise the power of thinking and to develop their own perception. It is at this stage, the learners are exposed to the rigor of the discipline of economics in a systematic way. The economics courses are introduced in such a way that in the initial stage, the learners are introduced to the economic realities that the nation is facing today along with some basic statistical tools to understand these broader economic realities. In the later stage, the learners are introduced to economics as a theory of abstraction. The economics courses also contain many projects and activities. These will provide opportunities for the learners to explore various economic issues both from their day-to-day life and also from issues, which are broader and invisible in nature. The academic skills that they learn in these courses would help to develop the projects and activities. The syllabus is also expected to provide opportunities to use information and communication technologies to facilitate their learning process.

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.

DISTRIBUTION

Units	Periods	Marks
Part A: Introductory Macro economics		
1. National Income and Related Aggregates	28	10
2. Money and Banking	15	06
3. Determination of Income and Employment	27	12
4. Government Budget and the Economy	15	06
5. Balance of Payments	15	06
	100	40
Part B: Indian Economic Development		
6. Development policies and Experience (1947-90) and Economic Reforms since 1991	32	12
7. Current Challenges facing Indian Economy- Part I	20	
8. Current Challenges facing Indian Economy- Part I		
9. Current Challenges facing Indian Economy- Part II		

(Unit 7, 8 & 9)		22
10. Development experience of India-A Comparison	12	06
	104	40
Project Work	20	20

Marking Scheme for project work:

S. No.	Heading	Marks Allotted
1.	Relevance of the topic	3
2.	Knowledge Content/Research Work	6
3.	Presentation Technique	3
4.	Viva	8
	Total	20 Marks

FORMATIVE ASSESSMENT

25 MARKS

1 Mark : (5 questions)

3 Marks: (2 questions)

4 Marks:(2 question)

6 Marks: (1 question)

SUMMATIVE ASSESSMENT

80 MARKS

1 Mark : (20 questions)

3 Marks: (4 questions)

4 Marks:(6 questions)

6 Marks: (4 questions)

Suggested Question Paper Design
Economics (Code No. 030)
Class XII (2019-20)

Marks: 80

Duration: 3 hrs.

SN	Typology of Questions	Objective Type/ MCQ 1 Mark	Short Answer I 3 Marks	Short Answer II 4 Marks	Long Answer 6 Marks	Marks
1	Remembering: Exhibit memory of previously learned material by recalling facts, terms, basic concepts, and answers.	5	1	2	1	22
2	Understanding: Demonstrate understanding of facts and ideas by organizing, comparing, translating, interpreting, giving descriptions, and stating main ideas	5	1	2	1	22
3	Applying: Solve problems to new situations by applying acquired knowledge, facts, techniques and rules in a different way.	5	1	1	1	18
4	Analysing and Evaluating: Examine and break information into parts by identifying motives or causes. Make inferences and find evidence to support generalizations. Present and defend opinions by making judgments about information, validity of ideas, or quality of work based on a set of criteria. Creating: Compile information together in a different way by combining elements in a new pattern or proposing alternative solutions.	5	1	1	1	18
Total		20x1=20	4x3=12	6x4=24	4x6=24	80 (34)

Part A: Introductory Macroeconomics

Unit 1: National Income and Related Aggregates

Technical words:

(Final goods, Capital goods, GDP, GNP, NNPF, Transfer Income, Factor Income, Real Income Nominal Income, National Income.)

Meaning of Macro Economics Some basic concepts: consumption goods, capital goods, final goods, intermediate goods; stocks and flows; gross investment and depreciation.

Circular flow of income(2 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 and Net Domestic Product (GDP and NDP) - at market price, at factor cost; Real and Nominal GDP.

GDP and Welfare

Unit 2: Money and Banking

Technical words:

(Barter System, Currency, Credit Creation, Credit Control, CRR, SLR, RBI, Fiat Money, Fiduciary Money.)

Money - its 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, Controller of Credit through Bank Rate, CRR, SLR, Reverse Repo Rate, Open Market Operations, Margin requirement.

Activity: Group discussion on current banking system

Unit 3: Determination of Income and Employment

Technical words:

(Aggregate Demand, Aggregate Supply, Consumption, Saving, MPS, MPC, APS, APC, Exces Demand, Deficit Demand.)

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 - change in government spending, availability of credit, taxes and money

Unit 4: Government Budget and the Economy

Technical words:

(Budget, Revenue, Capital Fiscal Deficit, Revenue Deficit, Primary Deficit.)

Government budget - meaning, objectives and components.

Classification of receipts - revenue receipts and capital receipts; classification of expenditure - revenue expenditure and capital expenditure.

Measures of government deficit - revenue deficit, fiscal deficit, primary deficit their meaning.

Unit 5: Balance of Payments

Technical words: (Foreign Exchange Rate, Flexible Rate, Fixed Rate, BOP, BOT, Current Account, Capital Account.)

Balance of payments account - meaning and components; balance of payments deficit-meaning.

Foreign exchange rate - meaning of fixed and flexible rates and managed floating.
Determination of exchange rate in a free market.

Activity: Debate on FOREX fluctuations.

Part B: Indian Economic Development

Unit 6: Development Policies and Experience (1947-90) and Economic Reforms since 1991

Technical words: Zamindari system, Import substitution, Self reliance, Socialist system, Capitalist, Mixed economy, Equity, Modernization. Liberalization, Globalization, Privatization, Fiscal deficit, BOP, Foreign exchange, Licensing.

- a) A brief introduction of the state of Indian economy on the eve of independence.
- b) Common goals of Five Year Plans
- c) Main features, problems and policies of agriculture (institutional aspects and new agricultural strategy, etc.), industry (industrial licensing, etc.) and foreign trade.
- d) **Economic Reforms since 1991:** Features and appraisals of liberalisation, globalisation and privatisation (LPG policy); Concepts of demonetization and GST

Unit 7: Current challenges facing Indian Economy: Part I

Technical words: Poverty, Absolute poverty, Relative poverty, Rural development, Marketing, Organic farming

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

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

Unit 8: Current challenges facing Indian Economy: Part II

Technical words: Human Capital, Employment

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

Employment: Formal and informal growth; problems and policies.

Activity: Critical evaluation on LPG reforms through PPT's

Unit 9: Current challenges facing Indian Economy: Part III

Technical words: Infrastructure, Energy, Health, Sustainable Development, Global warming.

Infrastructure: Meaning and Types: Case Studies: Energy and Health: Problems and Policies- A critical assessment;

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

Unit 10: Development Experience of India

Technical words: Demographic indicators, Sectoral development, HDI, Liberty indicators

A comparison with neighbours

India and Pakistan

India and China

Issues: growth, population, sectoral development and other Human Development Indicators.

Activity: Power point presentations on project work

Business studies (054)

Class-XII (commerce)

2019-20

Course structure

BOOKS: NCERT-1 NCERT-2

Rationale

The courses in Business Studies and Accountancy are introduced at + 2 stage of Senior Secondary Education as formal commerce education is provided after first ten years of schooling. Therefore, it becomes necessary that instructions in these subjects are given in such a manner that students have a good understanding of the principles and practices bearing in business (trade and industry) as well as their relationship with the society. Business is a dynamic process that brings together technology, natural resources and human initiative in a constantly changing global environment. To understand the framework in which a business operates, a detailed study of the organisation and management of business processes and its interaction with the environment is required. Globalization has changed the way organizations transact their business. Information Technology is becoming a part of business operations in more and more organisations. Computerized systems are fast replacing other systems. E-business and other related concepts are picking up fast which need to be emphasized in the curriculum. The course in Business Studies will prepare students to analyze, manage, evaluate and respond to changes which affect business. It provides a way of looking at and interacting with the business environment. It recognizes the fact that business influences and is influenced by social, political, legal and economic forces. It allows students to appreciate that

business is an integral component of society and develops an understanding of many social and ethical issues. Therefore, to acquire basic knowledge of the business world, a course in Business Studies would be useful. It also informs students of a range of study and work options and bridges the gap between school and work.

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 familiarize students with theoretical foundations of the process of organizing 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.

S.NO.	UNITS	Periods	Marks
Part A	Principles and Functions of Management		
1	UNIT 1:Nature and Significance of Management	14	16
2	UNIT 2 (a):Principles of Management	14	
3	(b):Business Environment	12	
4	UNIT 3 (a): Planning	14	14
5	(b):Organizing	18	
6	UNIT 4: Staffing	16	
7	UNIT 5(a):Directing	18	20
8	(b):Controlling	14	
		120	50
Part B	Business Finance and Marketing		
9	UNIT 6:Financial Management	22	15
10	UNIT 7:Financial Markets	20	
11	UNIT 8:Marketing Management	32	15
12	UNIT 9:Consumer Protection	16	
Part C	UNIT 10:Project Work (One Project and its PPT)	30	20
		120	50

PRACTICAL DISTRIBUTION:

Allocation of Marks = 20 (for one project)

The marks will be allocated under the following heads:

- | | |
|--|--------|
| 1. Initiative, cooperativeness and participation | 2 Mark |
| 2. Creativity in presentation | 2 Mark |
| 3. Content, observation and research work | 4 Mark |
| 4. Analysis of situations | 4 Mark |
| 5. Viva | 8 Mark |

Total 20 Marks

UNIT TEST

One Paper: 1hr.

25 Marks

Marks of questions	Number of Questions
1	5
3	2
4	2
6	1

TERMINAL EXAMINATION

One Paper: 3hrs.

80 Marks

Marks of questions	Number of Questions
1	20
3	5
4	3
5	3
6	3

Suggested Question Paper Design
Business Studies (Code No. 054)
Class XII (2019-20)
March 2020 Examination

Marks: 80

Duration: 3 hrs.

SN	Typology of Questions	Objective Type/ MCQ 1 Mark	Short Answer I 3 Marks	Short Answer II 4 Marks	Long Answer I 5 Marks	Long Answer II 6 Marks	Marks
1	Remembering: Exhibit memory of previously learned material by recalling facts, terms, basic concepts, and answers.	5	1	1	1	1	23
2	Understanding: Demonstrate understanding of facts and ideas by organizing, comparing, translating, interpreting, giving descriptions, and stating main ideas	5	2	1	-	1	21
3	Applying: Solve problems to new situations by applying acquired knowledge, facts, techniques and rules in a different way.	5	1	-	1	1	19
4	Analysing and Evaluating: Examine and break information into parts by identifying motives or causes. Make inferences and find evidence to support generalizations. Present and defend opinions by making judgments about information, validity of ideas, or quality of work based on a set of criteria. Creating: Compile information together in a different way by combining elements in a new pattern or proposing alternative solutions.	5	1	1	1	-	17
Total		20x1=20	5x3=15	3x4=12	3x5=15	3x6=18	80 (34)

There will be **Internal Choice** in questions of 3 marks (1 choice), 4 marks (1 choice), 5 marks (2 choices) and 6 marks (2 choices). In all, total 6 internal choices.

Part A: Principles and Functions of Management

UNIT1: Nature and significance of Management: (Periods 14)

- Management - Concept, Objectives and Importance
- Management as Science, Art and Profession.
- Levels of management
- Management functions - Planning, Organizing, Staffing, Directing and Controlling.
- Coordination - Concept, Characteristics and Importance.

Keywords: Management, Levels, Planning, Organizing, Staffing, Directing, Controlling, Coordination.

Activity: Visit a local business unit and find out what are their objectives and categories them in economic, social and personal categories. Submit report for the same.

UNIT 2 (a): Principles of Management: (Periods 14)

- Principles of Management - Concept, Nature and Significance
- Fayol's Principles of Management
- Taylor's Scientific Management - Principles and Techniques

UNIT 2(b): Business Environment: (Periods 12)

- Business Environment - Concept and Importance
- Dimensions of Business Environment - Economic, Social, Technological, Political and Legal

- Impact of Government policy changes on business with special reference to Liberalization, Privatization and Globalization in India.
- Demonetization- Concept and FEATURES

Key words: Principles, Techniques, Economic Environment, Social political, technological and legal environment, Liberalization, Privatization, Globalization.

Activity: Prepare PPT and find out whether they are using Fayol's or Taylor's principles of management and what benefits they are deriving from these principles.

UNIT 3: (a) Planning: (Periods 14)

- Concept, Importance and Limitations
- Planning Process
- Single use and Standing Plans - Objectives, Strategy, Policy, Procedure, Method, Rule, Budget and Programme.

UNIT 3(b) Organizing: (Periods 18)

- Concept and IMPORTANCE.
- Organizing Process.
- Structure of organization - Functional and Divisional.
- Formal and Informal Organization: Concept
- Delegation: Concept, Elements and Importance.
- Decentralization: Concept and Importance.

Key words: Planning, Objective, Strategy, Policy, Procedure, Budget, Organizing, Functional and Divisional Organization, Formal and Informal Organization, Delegation, Decentralization, Programme.

Activity: Visit a business and list down the various types of plans followed.

UNIT 4: Staffing

(Periods16)

- Concept and Importance of Staffing
- Staffing as a part of Human Resource Management: Concept
- Staffing Process:
 - Recruitment - Process
 - Selection - Process
- Training and Development - Concept and Importance. Methods of Training- On the job and Off the job- Induction training, Vestibule training, Apprenticeship training and Internship training.

Key words: Staffing, Human Resource Management, Recruitment, Selection, Internal and external source, Training, Vestibule, apprenticeship, Internship.

Activity: Visit a firm and find out recruitment policy. What source of recruitment they are using and why.

UNIT 5 (A): Directing:

(Periods 18)

- Concept and importance
- Elements of Directing
 - Motivation - Concept, Maslow's hierarchy of needs; financial and Non-financial incentives.

- Supervision - Concept and functions.
- Leadership - Concept, Styles - Authoritative, Democratic and Laissez faire.
- Communication - Concept, Formal and Informal Communication; Barriers to Effective Communication, How to overcome the barriers.

Key words: Directing, Motivation, leadership, Authoritative, Democratic, Laissez faire, supervision, Financial and non financial Incentive.

Activity: Visit any 2-3 firms and find out what communication network they are using and what facilities they have for smooth flow of communication and submit a report.

UNIT 5(B): Controlling: (Periods 14)

- Concept, Nature and Importance
- Relationship between Planning and Controlling
- Steps in the process of Control

Key words: Controlling, Critical Point Control, Budgetary Control, Budget, PERT AND CPM.

Activity: Analyze the controlling process of a company.

Part B: Business Finance and Marketing

UNIT 6: Financial Management: (Periods 22)

- Concept, Role and Objectives of Financial Management.
- 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 7: Financial Markets:

(Periods 20)

- Financial Markets: Concept and Types and Functions
- Money market and its Instruments.
- Capital market and its Types (Primary and Secondary), methods of floatation in the Primary Market.
- Stock Exchange - functions and trading procedure. Depository Services and D'emat Account.
- Securities and Exchange Board of India (SEBI) - Objectives and Functions.

Key words: Financing, Investing, Dividend, Capital Structure, Fixed and Working Capital, Financial Market, Stock Exchange, Depository and D'Mat Account, SEBI.

Activity: Prepare a project on the role of SEBI in stock market.

: Prepare a project on stock market.

UNIT 8: Marketing Management:

(Periods 32)

- Marketing: Management Philosophies, Functions and Concept
- Marketing Mix - Concept and Elements
 - Product – Concept- Branding, Labeling and Packaging.
 - Price – Concept, Factors determining price.
 - Physical Distribution- Concept, Components Channels of distribution.

- Promotion -Concept and Elements; Advertising, Personal Selling, Sales Promotion and Public Relations.

Key words: Marketing, Selling, Branding, Labeling, Packaging, Advertising, Promotion, Personal Selling, Public Relation, Salesmanship.

Activity: Project on marketing mix.

UNIT 9 : Consumer Protection: (Periods 16)

- Concept and Importance of Consumer Protection.
- Consumer Protection Act 1986:
 - Meaning of Consumer and Consumer Protection.
 - Rights and Responsibilities of Consumers
 - Who can file a complaint and against whom?
 - Redressal machinery.
 - Remedies available.
- Consumer awareness - Role of consumer organizations and Non-Governmental Organizations (NGO's)

Key words: Consumer, Redressal, Rights, Remedies and NGO'S.

Activity: Prepare a questionnaire to interview a consumer and find out whether he is aware about his rights, responsibilities etc.

UNIT10: Project Work

PHYSICAL EDUCATION (048)

Class XII (2019–20)

SYLLABUS

Theory

Max. Marks 70

Unit I Planning in Sports

- Meaning & Objectives of Planning
- Various Committees & its Responsibilities (pre; during & post)
- Tournament – Knock-Out, League or Round Robin & Combination
- Procedure to Draw Fixtures – Knock-Out (Bye & Seeding) & League (Staircase & Cyclic)
- Intramural & Extramural – Meaning, Objectives & Its Significance
- Specific Sports Programme (Sports Day, Health Run, Run For Fun, Run For Specific Cause & Run For Unity)

PRACTICAL- General fitness-Warming up and cooling down

Unit II Sports & Nutrition

- Balanced Diet & Nutrition: Macro & Micro Nutrients
- Nutritive & Non-Nutritive Components Of Diet
- Eating For Weight Control – A Healthy Weight, The Pitfalls of Dieting, Food Intolerance & Food Myths

PRACTICAL - Game-Fundamentals skills of Badminton

Unit III Yoga & Lifestyle

- Asanas as preventive measures
- Obesity: Procedure, Benefits & contraindications for Vajrasana, Hastasana, Trikonasana, Ardh Matsyendrasana
- Diabetes: Procedure, Benefits & contraindications for Bhujangasana, Paschimottasana, Pavan Muktasana, Ardh Matsyendrasana
- Asthema: Procedure, Benefits & contraindications for Sukhasana, Chakrasana, Gomukhasana, Parvatasana, Bhujangasana, Paschimottasana, Matsyasana
- Hypertension: Tadasana, Vajrasana, Pavan Muktasana, Ardha Chakrasana, Bhujangasana, Sharasana
- Back Pain: Tadasana, Ardh Matsyendrasana, Vakrasana, Shalabhasana, Bhujangasana

PRACTICAL -Practice of yoga asana,meditation and pranayam

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

- Concept of Disability & Disorder
- Types of Disability, its causes & nature (cognitive disability, intellectual disability, physical disability)
- Types of Disorder, its cause & nature (ADHD, SPD, ASD, ODD, OCD)

- Disability Etiquettes
- Advantage of Physical Activities for children with special needs
- Strategies to make Physical Activities accessible for children with special need.

PRACTICAL - Athletics events-Short,middle and long races

Unit V Children & Women in Sports

- Motor development & factors affecting it
- Exercise Guidelines at different stages of growth & Development
- Common Postural Deformities - Knock Knee; Flat Foot; Round Shoulders; Lordosis, Kyphosis, Bow Legs and Scoliosis and their corrective measures
- Sports participation of women in India
- Special consideration (Menarch & Menstrual Dysfunction)
- Female Athletes Triad (Oestoperosis, Amenorrhea, Eating Disorders)

PRACTICAL- Game-Badminton-Dimension, rules of the game

Unit VI Test & Measurement in Sports

o Motor Fitness Test – 50 M Standing Start, 600 M Run/Walk, Sit & Reach, Partial Curl Up, Push Ups (Boys), Modified Push Ups (Girls), Standing Broad Jump, Agility – 4x10 M Shuttle Run

o General Motor Fitness – Barrow three item general motor ability (Standing Broad Jump, Zig Zag Run, Medicine Ball Put – For Boys: 03 Kg & For Girls: 01 Kg)

o Measurement of Cardio Vascular Fitness – Harvard Step Test/Rockport Test -
Computation of Fitness Index: Duration of the Exercise in Seconds x 100

5.5 X Pulse count of 1-1.5 Min after Exercise

O Rikli & Jones - Senior Citizen Fitness Test

1. Chair Stand Test for lower body strength
2. Arm Curl Test for upper body strength
3. Chair Sit & Reach Test for lower body flexibility
4. Back Scratch Test for upper body flexibility
5. Eight Foot Up & Go Test for agility
6. Six Minute Walk Test for Aerobic Endurance

PRACTICAL-AAPHER and Barrow test

Unit VII Physiology & Injuries in Sports

- Physiological factor determining component of Physical Fitness
- Effect of exercise on Cardio Respiratory System
- Effect of exercise on Muscular System
- Physiological changes due to ageing

- Sports injuries: Classification (Soft Tissue Injuries : (Abrasion, Contusion, Laceration, Incision, Sprain & Strain) Bone & Joint Injuries: (Dislocation, Fractures: Stress Fracture, Green Stick, Comminuted, Transverse Oblique & Impacted) Causes, Prevention& treatment
- First Aid – Aims & Objectives

PRACTICAL-Game-Volleyball-Fundamental skills

Unit VIII Biomechanics & Sports

- Meaning and Importance of Biomechanics in Sports
- Types of movements (Flexion, Extension, Abduction & Adduction)
- Newton’s Law of Motion & its application in sports
- Friction & Sports

PRACTICAL- Dimension, rules of Volleyball

Unit IX Psychology & Sports

- Personality; its definition & types – Trait & Types (Sheldon & Jung Classification) & Big Five Theory
- Motivation, its type & techniques
- Exercise Adherence; Reasons to Exercise, Benefits of Exercise
- Strategies for Enhancing Adherence to Exercise
- Meaning, Concept & Types of Aggressions in Sports

PRACTICAL-Practice of Meditation and Pranayama

Unit X Training in Sports

- Strength – Definition, types & methods of improving Strength – Isometric, Isotonic & Isokinetic
- Endurance - Definition, types & methods to develop Endurance – Continuous Training, Interval Training & Fartlek Training
- Speed – Definition, types & methods to develop Speed – Acceleration Run & Pace Run
- Flexibility – Definition, types & methods to improve flexibility
- Coordinative Abilities – Definition & types
- Circuit Training - Introduction & its importance

PRACTICAL-Isometric, Isotonic, Isokinetic exercise

Practical	Max. Marks 30
01. Physical Fitness Test -	6 Marks
02. Proficiency in Games and Sports (Skill of any one Game of choice from the given list*)-	7 Marks
03. Yogic Practices	7 Marks
04. Record File ** -	5 Marks
05. Viva Voce (Health/ Games & Sports/ Yoga) -	5 Marks

* Basketball, Football, Kabaddi, Kho-Kho, Volleyball, Handball, Hockey, Cricket, Bocce & Unified Basketball [CWSN (Children with Special Needs - Divyang)]

**Record File shall include:

Practical-1: Fitness tests administration for all items.

Practical-2: Procedure for Asanas, Benefits & Contraindication for any two Asanas for each lifestyle Disease.

Practical-3: Procedure for administering Senior Citizen Fitness Test for 5 elderly family members.

Practical-4: Any one game of your choice out of the list above. Labelled diagram of field & equipment (Rules, Terminologies & Skills).

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