Revised Syllabus for 2020-21

ALTERNATIVE ENGLISH
(Arts/Science/Commerce Stream)
(Detailed Syllabus)
FIRST YEAR
(No of Periods 50)

Unit -I Prose

i. The Adventure of Learning
ii. Men and Women
iii. Modern Living .

Unit -II Poetry

i. Ecology (A.K.Ramanujan)
ii. Dog's Death (John Updike)
iii. The Fog (W.H.Davies)

Unit -III Short Stories

i. The Rainbow-Bird (Vance Palmer) xi
ii. The Eyes Have it (Ruskin Bond) xii

Unit -IV One-Act Plays

i. Mother's Day (J.B. Priestley) xvii
ii. The Unexpected (Ella Adkins) xviii

Unit-V GRAMMAR & USAGE

i. Tense and Aspect
ii. Modals
iv. The Passive
v. Prepositions and Phrasal Verbs

SECOND YEAR
(No.of Periods-50)

Units -I Prose

i. The Wonder World of Science v
ii. Our Environment vii
iii. The World of Business viii

Unit -II Poetry

SI. No.	**Units**
i. Indian Children Speak (Juanita Bell)	vi.
ii. The Goat Paths (James Stephen)	vii
iii. Of a Questionable Conviction (Jayanta Mahapatra)	viii

Short Stories

Units to be studied :

SI. No.	**Units**
i. The Tree (Manoj Das)	xv
ii. The Watch Man (R.K.Narayan)	xvi

One Act Plays
Units to be studies

SI. No.	**Units**
i. The Hour of Truth (Pefciva! Wilde)	xix

C. GRAMMAR & USAGE

i. Revision of Tense and Aspect'
ii. Revision of Prepositions and Phrasal Verbs .
iii. Linking Devices

Books Prescribed : Approches to English-I
Approches to English-II

Published by - Odisha State Bureau of Textbook Preparation & Production, Pustak Bhavan Bhubaneswar.

N.B : No Change in Question Pattern

Revised Syllabus For the Session 2020-21

BIOTECHNOLOGY
Class XI
Course Structure

Units Topics	Marks
Unit -I Biotechnology An overview	10
Unit - II Molecules of Life	20
Unit - III Genes & Genomes	20
Unit - IV Cells and Organisms	20
Practical	30

Unit-I: Biotechnology: An overview **8 period**

Chapter 1: Introduction to Biotechnology

Historical Perspectives; Production Strategies in Biotechnology; Safety; Good Manufacturing Practices; Good Laboratory Practices; Biotechnology in India and Global Trends.

Unit-II: Molecules of Life **16 period**

Chapter 1: Biomolecules: Building Blocks

Building Blocks of Carbohydrates - Sugars and Their Derivatives; Building Blocks of Proteins -Amino Acids; Building Blocks of Lipids - Simple Fatty Acids, Sphingosine, Glycerol and Cholesterol;

Building Blocks' of Nucleic Acids -Nucleotides;

Chapter 2: Macromolecules: Structure & Function

Carbohydrates - The Energy Givers; Proteins - The Performers; Enzymes - The Catalysts; Lipids and Biomembranes - The Barriers; Nucleic Acids - The Managers

Unit III: Genes & Genomes **16 Period**

Chapter 1: Gene Structure and Function

Cell Structure and Components; Discovery of DNA as Genetic Material

Chapter 2: Genomes Organization & Function

Cell Division; Cell Cycle; Cdl Communication; Reproduction; In vitro Fertilization; Immune Response in Animals; Programmed Cell Death;

Unit IV: Cells and Organisms **16 Period**

Chapter 1: Cells: The Basic Unit of Life

Linkage and Crossing Over; Genetic Mapping; Gene
Interaction; Sex-Linked. Inheritance; Mutations; DNA Repair; Genetic Disorders

Chapter 2: Organisms: Structure & Dynamics

Genome Organization; DNA Replication; Fine Structure of Genes; From Gene to Protein; Transcription' - The Basic Process; Genetic Code; Translation; Regulation of Gene Expression

PRACTICALS

1. Preparation of buffers and pH determination
2. Sterlization techniques
3. Preparation of bacterial growth medium
4. Isolation of bacteria from curd and staining of bacteria
5. Determination of bacterial growth curve
6. Study of various stages of mitosis and calculation of mitotic index

7. Preparation of karyotyping
8. Cell counting
9. Isolation of genomic DNA

BIOTECHNOLOGY
Class XII

Unit V: Protein and Gene Manipulation (28 Periods)

Chapter-1: Recombinant DNA Technology

Introduction; Tool of rDNA Technology; ntroduction of Recomblni DNA into Host Cells; Identification of Recombinants; DNA Probes; Hybridiziitlj Techniques; Polymerase Chain Reaction (PCR); DNA Sequencing; Site-directed Mutagenesis

Chapter-2: Protein Structure and Engineering

Introduction to the World of Proteins; 3-D Shape of Proteins; Structure-Function Relationship

Proteins Purification of Proteins; Characterization of Proteins;

Chapter-3: Genomics and Bioinformatics

Introduction; Genome Sequencing Projects; Gene Prediction and Counting; Genome Similarity, SNPl I and Comparative Genomics; Functional Genomics; Proteomics; Sequence! and Nomenclature;

Unit VI: Cell Culture and Genetic Manipulation (28 Periods)

Chapter-1: Microbial Culture and Applications

Introduction, Microbial culture techniques, Isolation of microbial products, Strain isolation and improvement, Applications of microbial culture technology,

Chapter-2: Plant Cell Culture and Applications

Introduction; Cell and Tissue Culture Techniques; Applications of Cell and Tissue Culture; Gene Transfer Methods in Plants; Transgenic Plants with Beneficial Traits;

Chapter-3: Animal Cell Culture and Applications

Introduction, Animal ceil culture techniques, , Scale-up of animal culture process, Stem cell technology,

Books Recommended:

1. Bureau's Higher Secondary (+2) Biotechnology, Part-I &II, Published

Revised Syllabus For 2020-21 session

Biology

Ist year Science(Theory)

Unit I : Diversity in living world
Unit II: Structural organization in animals and plants
Unit III: Cell structure and function
Unit IV: Plant physiology
Unit V: Human physiology

Biology

2nd year Science(Theory)

Unit I: Reproduction
Unit II: Genetics and Evolution
Unit III: Biology and Human Welfare
Unit IV: Biotechnology and its applications
Unit V: Ecology and Environment

Ist year Science(Theory)

Therory

(The no on the right is periods required excluding the deleted portion)

I. Diversity in Living World (Periods 10)

a. What is living?, Biodiversity; Need for classification; Three domains of life; Concept of species and taxonomical hierarchy; Binomial nomenclature; (02)

b. Five Kingdom classification**;** Salient features and classification of Monera, Protista andFungi into major groups; Lichens; Viruses and Viroids.

c. Salient features and classificatin of plants into major groups- Alagae, Bryophytes,Pteridophytes, Gymnosperms (three to five salient and distinguishingfeatures and at least two examples of each category); d. Salient features and classification of animals- non-chordates up to phyla level andchordates up to classes level (three to five salient features and at least two examples). (04)

II. Structural Organization in Animals and Plants (Periods 12)

a. Deleted

III.Cell Structure and Function

a . Cell theory and cell as the basic unit of life; Structure of prokaryotic and eukaryotic cell;Plant cell and animal cell; Cell envelope, cell membrance, cell wall; Cell organellesstructure and function; Endomembrance system- endoplasmic reticulum, Golgi bodies,lysosomes, vacuoles; mitochondria, ribosomes, plastids, microbodies; Cytoskeleton,,cilia, flagella, centrioles (ultra structure and function); necleus' neclearmembrance,chromatin, necleolus.

b. Chemical constituents of living cells: Biomolecules- structure and function of proteins,carbohydrates, lipid, nucleic acids; Enzymes-types, properties, enzyme action.Cell division: Cell cycle, mitosis, meiosis and theirsignificance.

IV. Plant Physiology (Period 16)

a. Deleted

b. Deleted

c. Photosynthesis in Higher Plants (This part is added)

Photosynthesis as a means of autotrophic nutrition; site of photosynthesis, pigments involved in photosynthesis (elementary idea); photochemical and biosynthetic phases of photosynthesis; cyclic and non-cyclic photophosphorylation; chemiosmotic hypothesis; photorespiration; C3 and C4 pathways; factors affecting photosynthesis.

d: Respiration: Exchange of gases; Cellular respiration-glycolysis,fermentation(anaerobic), TCA cycle and electron transport system (aerobic); Energyrelation - Number of ATP molecules generated; Amphibolic pathways; Respiratory quotient.

e. Plant growth and Development: Growth regulators-auxin, gibberellin,cytokinin,ethylene, Abscilic acid (ABA);

V. Human Physiology (Periods 30)

a. Deleted

b. Breathing and Respiration: Respiratory organs in animals (tracheal, brancheal,cutaneous, pulmonary); Respiratory system in humans; Mechanism of respiration(breathing) and its regulation in humans- Exchange of gases, transport of gases,Respiratory volumes; Disorders related to respiration- Asthma, Emphysema, Occupationalrespiratory disorders. (04)

c. Body fluids Circulation: Compositon of blood, blood groups, coagulation of blood;Composition of lymph and its function; Human circulatory system- Structure and working of human heart, blood vessels; Cardiac cycle, cardiac output, ECG; Double circulation;Regulation of cardiac activity. Disorders of circulatory system- Hypertension, Coronaryarterydiesease, Angina pectoris, Heart failure. (05)

d. Excretory products and their elimination: Modes of excretion-Ammonotelism,ureotelism, uriocotelism; Human excretory system-structure and function; Mechanismof Urine formation, Osmoregulation: Regulation of kidney function- Reninangiotensin,Artial Natriuretic Factor, ADH and Diabetes insipidus; Role of other organs in excretion;Disorders- Uraemia, Renal failure, Renal calculi, Nephritis; Dialysis and artificial kidney. (05)

e. Deleted

f. Neural control and Coordination: Neuron and nerves; Nervous system in humans central nervous system (brain, spinal cord), peripheral nervous system and visceralnervous system; Generation and conduction of nerve impulse; (04)

g. Chemical coordination and Regulation: Endocrine glands and hormones; Humanendocrine system- Hypothalamus, Pituitary, Pineal, Thyroid, Parathyroid, Adrenal, Pancreas, Gonads; Mechanism of hormone action (Elementary Idea); Role of hormones as messengers and regulator, Hypo- and hyperactivity and related disorders (Commondisorders e.g. Dwarfism, acromegaly, cretinism, goiter, exopthlmicgoiter, diabetes,Addison's disease). (04)

(NB: Ib, c; IIa; III and IV units are to be taught by Botany Faculty. Ia, d; IIb; V units are to taught by
Zoology Faculty.)

Biology
2nd Year Science
Theory

I. Reproduction

a.

Sexual reproduction in flowering plants: Flower structure; Development of male andfemale gametophytes; Pollination-types, agencies and examples; Outbreeding devices;Pollen-Pistil interaction; Double fertilization; Post fertilization events Development ofendosperm and embryo, Development of seed and formation of fruit; Special modesapomixis,parthenocarpy, polyembryony; Significance of seed and fruit formation.

b. Human Reproduction: Male and female reproductive systems; Microscopic anatomyof testis and ovary; Gametogenesis-spermatogenesis & oogenesis; Menstrual cycle;Fertilisation, embryo development upto blastocyst formation, implantation; Pregnancyand placenta formation (Elementary idea); Parturition (Elementary idea); Lactation (Elemntary idea). (10)

Reproductive health: Need for reproductive health and prevention of sexually transmitteddiseases (STD); Birth control- Need and Methods, Contraception and Medical Terminationof Pregnancy (MTP); Amniocentesis; Infertility and assisted reproductive technologies -IVF, ZIFT, GIFT (Elementary idea for general awareness). (08)

II. Genetics and Evolution (Periods 20)

a. **Heredity and Variation:** Mendelian Inheritance; Deviations from Mendelism-Incompletedominane, Co-dominance, Multiple alleles and Inheritance of blood groups, Pleiotropy;Elementary idea of polygenic inheritance; Chromosome theory of inheritance;Chromosomes and genes; Linkage and crossing over.

b. Sex determination- In humans, birds, honey bee; Sex linked inheritance- Haemophilia,Colour blindness; Mendelian disorders in humans- Thalasemia; Chromosomal disordersin humans- Down's syndrome, Turner's and Klinefelter's syndromes. (04)

c. Molecular Basis of Inheritance: Search for genetic material and DNA as geneticmaterial; Structure of DNA and RNA; DNA packaging; DNA replication; Central dogma;Transcription, Genetic code, Translation; Gene expression and regulation- Lac Operon;Genome and human genome project; DNA finger printing.

d. Deleted

III. Biology and Human Welfare (Periods 08)

a. health and Disease: Pathogens; parasites causing human diseases (Malaria, Filariasis,Ascariasis, Typhoid, Pneumonia, common cold, amoebiasis, ring worm); Basic conceptsof immunology- vaccines; Cancer, HIV and AIDS; Adolescence, drug and alcohol abuse. (04)

b. Improvement in food production:

i) , Biofortification;

ii)

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

IV. Biotechnology and its Applications (Periods 08)

a. Principles and process of Biotechnology: Genetic engineering (Recombinant DNAtechnology). (04)

b. Application of Biotechnology in health and agriculture: Human insulin and vaccineproduction, gene therapy; Genetically modified organisms- Bt crops; Transgenic Animals; Biosafety issues- Biopiracy and patents. (04)

V. Ecology and environment (Periods 12)

a. Organisms and environemnt: Habitat and niche; Population and ecological adaptations;population interactions-mutualism, competition, predation, parasitism; Populationattributes-growth, birth rate and death rate, age distribution.

b. Deleted

c. Biodiversity and its conservation: Concept of Biodiversity; Patterns of Biodiversity;Importance of Biodiversity; Loss of Biodiversity,

conservation; Hotspots, endangeredorganisms, extinction, Red Data Book: Biosphere reserves, National parks andSanctuaries.

Environmental issues: Deleted

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(NB: Ia, II a, c; III b (i), c and v units are to be taught by Botany Faculty. I b; II b; III a, b(ii); IV units
are to be taught by Zoology Faculty.)

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QUESTION PATTERN AND DISTRIBUTION OF MARKS
BIOLOGY - II Theory
+ 2 Second Year Science
Section A - Botany
Time : 1.5 hours Full Marks : 35
Group A: (Objective Type- Compulsory)
Q1.- Multiple choice/ one word answer : 1 mark each x 5 = 5 marks
Q2.- Correct the sentences/ Fill up the blanks : 1 marks each x 5 = 5 marks
Group B: (Short Answer Type)
Q3.- Answer within three sentences : 2.5 marks each x 3 = 7.5 makrs
Q4.- Difference between (3 important differences)
(1 bit to be answered out of 3 bits) : 3.5 marks = 3.5 marks
Group C: (Long Answer Type)
Answer two questions out of four : 7 marks x 2 = 14 marks
Section B - Zoology
Time : 1.5 hours Full Marks : 35
Group A: (Objective Type- Compulsory)
Q1.- Multiple choice/ one word answer : 1 mark each x 5 = 5 marks
Q2.- Correct the sentences/ Fill up the blanks : 1 marks each x 5 = 5 marks
Group B: (Short Answer Type)
Q3.- Answer within three sentences : 2.5 marks each x 3 = 7.5 makrs
(3 bits to be answered out of 6 bits)
Q4.- Difference between (3 important differences)
(1 bit to be answered out of 3 bits) : 3.5 marks = 3.5 marks
Group C: (Long Answer Type)
Answer two questions out of four : 7 marks x 2 = 14 marks
N.B: Long answer type questions are to be set only from the portions understand in the syllabus.

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BIOLOGY - II (Botany) Practical
+2 Second Year Science
Detailed Syllabus
Major Experiment:
1. Study of the effect of temperature and chemicals (ethanol, acetone, formaldehyde) on leachingof pigments in beet root.

2.
3. Study of transpiration by Ganong's or Farmer's potometer.
4. Study of relation between transpiration and absorption by T/A apparatus.
5. Effect of different wave length of light on photosynthesis by Wilmott's bubbler.
6.
7.
8. Collect and study soil from at least two different sites and study them for texture, moisturecontent, pH and water holding capacity of soil. Correlate with the kinds of plants found inthem.
9.
10.
11. Study of plant population density by quadrate method.
12. Study of plant population frequency by quadrate method.

Minor Experiments:

13. Study of pollen germination on a slide.
14. Study of distribution of stomata on upper and lower surface of a dicot and a monocot leaf.
15. Study of osmosis by potato osmometer.
16
17. Study of plasmolysis.

Spotting:

18. Conditions necessary for seed germination.
19.
20. Phototropism/
21. Morphological adaptation of hydrophyte and Xerophyte.

QUESTION PATTERN AND DISTRIBUTION OF MARKS
BIOLOGY - II (Botany) Practical
+ 2 Second Year Science

1. Major experiment (One) : 7 marks
2
2. Spotting (Two) : 3 marks
3. Viva voce: 3 marks (Recommended by Syllabus committee)
4. Record : 2 marks

Total : 15 Marks

Instruction:

5. All the above experiments should be conducted by individual student.
6. Questions for major and minor experiments are to be set by drawing lots.
7. For each major and minor experiments, candidates have to write the requirements as per
their questions which may be verified and signed by the external examiner only.

8. One observation for major experiment may be verified and signed by the external examiner
only.

Section B - Zoology (Theory) First year

Time : 1.5 hours Full Marks : 35

Group A: (Objective Type - compulsory)

Q1.- Multiple choice/ one word answer : 1 mark each x 5 = 5 marks

Q2.- Correct the sentences/ Fill upthe blanks :1 marks each x 5 = 5 marks **Group B: (Short Answer Type)**

Q3.- Answer within three sentences : 2.5 marks each x 3 = 7.5 marks (3 bits to be answered out of 6 bits)

Q4.- Differentiate between (3 important differences) (1 bit to be answered out of 3 bits) : 3.5 marks = 3.5 marks

Group C: (Long Answer Type)

Answer two questions out of four : 7 marks each x 2 = 14 marks N.B: Long answer type questions are to be set only from the portions underlined in the syllabus.

BIOLOGY - I (Zoology) Practical +2 First year Science Detailed Syllabus

A. EXPERIMENTS/ OBSERVATIONS:

1. To test the presence of carbohydrate, protein and fat in suitable animal materials (qualitative only).

B. SPOTTINGS/ IDENTIFICATION:

a. Study of specimens and identification with reasons- Amoeba, Hydra, Sycon, Liver fluke, Earthworm, Leech, Cockroach, Prawn, , Snail and Starfish.

b. Study of squamous epithelium, muscle fibres and mammalian blood film; (temporary/ permanent slides).

c. Study and comment on the morphological adaptations of two animals (Tree frog, Bat) found in terrestrial conditions and two animals (Flying fish,) found in aquatic conditions.

Book Recommended : Bureau's Higher Secondary (+2) Zoology, Practical, Published by Odisha State Bureau of Text Book Preparation and Production, Bhubaneswar.

QUESTION PATTERN AND DISTRIBUTION OF MARKS

BIOLOGY - I (Zoology) Practical +2 First year Science (For College Level Exam) Time : 2 hours Full marks : 15

1. Experiment (One experiment to be set from A) : 07 marks

Theory and Procedure - 03 marks Experiment,

Observation and Results - 04 marks

2. Spotting (2 spots to be set from B) - 1.5 marks x 2 : 03 marks (one from bit a, one from bit b or c)

3. Viva voce :03

4. Practical Record : 02 marks

QUESTION PATTERN AND DISTRIBUTION OF MARKS
BIOLOGY - II Theory + 2 Second Year Science

Section B - Zoology

Time : 1.5 hours Full Marks : 35

Group A: (Objective Type- Compulsory)

Q1.- Multiple choice/ one word answer : 1 mark each x 5 = 5 marks

Q2.- Correct the sentences/ Fill up the blanks : 1 marks each x 5 = 5 marks

Group B: (Short Answer Type)

Q3.- Answer within three sentences : 2.5 marks each x 3 = 7.5 makrs (3 bits to be answered out of 6 bits)

Q4.- Difference between (3 important differences) (1 bit to be answered out of 3 bits) : 3.5 marks = 3.5 marks

Group C: (Long Answer Type)

Answer two questions out of four : 7 marks x 2 = 14 marks

N.B: Long answer type questions are to be set only from the portions underlined in the syllabus.

BIOLOGY - II (Zoology) Practical +2 Second year Science Detailed Syllabus

A. EXPERIMENTS/ OBSERVATIONS:

1. To test the action of salivary amylase on starch;
2. To test the presence of urea sugar in urine/ given sample solution.
3. To determine the pH of three water samples collected from water bodies (using pH paper).
4.

B. SPOTTINGS/ IDENTIFICATION:

a. Study of specimens and identification with reasons- Shark, Rohu, Frog, Garden lizard, Cobra, Krait, Pigeon and Rat.

b. TS/ VS through spinal cord, ovary, testis, kidney, stomach .

c. appendicular skeleton of rabbit. (Girdles, Humerus, radius & Ulna, Femur, Tibia & Fibula.

d.

Book Recommended : Bureau's Higher Secondary (+2) Zoology, Practical, Published by Odisha State Bureau of Text Book Preparation and Production, Bhubaneswar.

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QUESTIONS PATTERN AND DISTRIBUTION OF MARKS BIOLOGY - II (Zoology) Practical + 2 Second Year Science

Time : 2 hours Full Marks : 15

1. Experiment (One experiment to be set from A) : 07 marks
   Theory and procedure - 03 marks
   Experiment, Observation and Results - 04 marks
2. Spotting (Two spots to be set from B) -1.5 marks each x 2 : 03 marks
3. Viva voce:03
4. Practical Record :02 marks

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Revised Syllabus For The session 2020-21

CHEMISTRY

for 1st year Science

Unit I: Some Basic Concepts of Chemistry

Atomic and molecular masses and equivalent mass of elements, acid, base, and salt,oxidants,reductants, and mole concept and molar mass, percentage composition, empirical and molecular formula, chemical reactions, stoichiometry and calculations based on stoichiometry, expression of concentration of solutions.

Unit II: Structure of Atom

Atomic number, isotopes, isobars, Rutherford's model and its limitations, Bohr's model and its limitations, concept of shells and subshells, dual nature of matter and light, de Broglie's relationship, Heisenberg uncertainty principle, concept of orbitals, quantum numbers, shapes of s, p and d orbitals, rules for filling electrons in orbitals – Aufbau principle, Pauli's exclusion principle and Hund's rule, electronic configuration of atoms, stability of half filled and fully filled orbitals.

Unit III: Classification of Elements and Periodicity in Properties

Modern periodic law and the present form of periodic table, periodic trends in properties of elements - atomic radii ionic radii, inert gas radii, Ionization enthalpy, electron gain enthalpy, electronegativity, valency and oxidation state. Nomenclature of elements with atomic number greater than 100.

Unit IV : Chemical Bonding and Molecular Structure

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

Unit V : States of Matter : Gases and Liquids

Role of gas laws in elucidating the concept of the molecule, Boyle's law, Charles law, Gay Lussac's law, Avogadro's law, ideal behaviour, empirical derivation of gas equation, Avogadro's number, ideal gas equation. Deviation from ideal behaviour liquefaction of gases, critical temperature, kinetic energy and molecular speeds (elementary idea).

Unit VI : Chemical Thermodynamics

Concepts of System and surroundings and types of system, surroundings, work, heat, energy, extensive and intensive properties, state functions.

First law of thermodynamics - Internal energy and enthalpy. Hess's law of constant heat summation, enthalpy of bond dissociation, combustion, formation, neutralization, atomization, sublimation, phase transition, ionization, solution and dilution, Second law of

Thermodynamics (brief introduction). Introduction of entropy as a state function, Gibb's energy change for spontaneous and non-spontaneous processes, criteria for equilibrium.
Third law of thermodynamics (Statement only).

Unit VII : Equilibrium

Equlibrium in physical and chemical processes, dynamic nature of equlibrium, law of mass action, equilibrium constant (Kc, Kp and Kx and their relationship), factors affecting equilibrium, Le- Chatelier's principle, ionic equilibrium, ionization of acids and bases, strong and weak electrolytes, degree of ionization, concept of PH, hydrolysis of salts (elementary idea), buffer solution, Henderson Equation, solubility, product, common ion effect (with illustrative examples) numerical problems.

Unit VIII : Redox Reaction

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

Unit IX : Hydrogen

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

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

Group 1 and Group 2 Elements

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

Unit XI : Some p- Block Elements

General Introduction to p- Block Elements

Group 13 Elements : General introduction, electronic configuration, occurrence, variation of properties, oxidation states, trends in chemical reactivity, anomalous properties of first element of the group, Boron - physical and chemical properties.

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

Unit XII : Organic Chemistry - Some Basic Principles and Technique

General introduction, classification and IUPAC nomenclature of organic compounds. Electronic displacements in a covalent bond, inductive effect, electromeric effect, resonance and hyperconjugation. Homolytic and heterolytic fission of a covalent bond free radicals, carbocations, carbanions, electrophiles and nucleophiles, types of organic reactions.

Unit XIII : Hydrocarbons

Classification of Hydrocarbons

Aliphatic Hydrocarbons :

Alkanes - Nomenclature, isomerism, conformation (ethane only), methods of preparation from unsaturated hydrocarbons, alkyl halides, carboxylic acids (Decarboxylation and Kolbes electrolytic method), physical properties, chemical reactions: including free radical mechanism of halogenation, combustion, controlled oxidation, isomerisation, aromatisation, with steam and pyrolysis.

Alkenes - Nomenclature, structure of double bond (ethene), geometrical isomerism, methods of preparation from alkynes, alkyl halides, vicinal dihalides, alcohols, physical properties, chemical reactions: addition of hydrogen, halogen, water, hydrogen halides, sulphuric acid (Markownikoff's addition and peroxide effect), ozonolysis, oxidation, polymerisation and mechanism of electrophilic addition reaction.

Alkynes - Nomenclature, structure of triple bond (ethyne), methods of preparation, from calcium carbide, vicinal dihalides, physical properties, chemical reactions : acidic character of alkynes, addition of hydrogen, halogens, hydrogen halides, water, and polymerisation.

Aromatic Hydrocarbons : Introduction, IUPAC nomenclature, benzene : resonance, aromaticity, preparation of benzene from acetylene, phenol and aromatic acids, chemical properties: mechanism of electrophilic substitution, nitration, sulphonation, halogenation, Friedel Craft's alkylation and acylation, addition of hydrogen, addition of chlorine, combustion.

CHEMISTRY (PRACTICAL)

+2, 1st Year Science

(Detailed syllabus)

Experiments :

1. Basic Laboratory Techniques : (Non-evaluative)

a) Bunsen burner (different parts and their functions)

b) Chemical balance - weighing with chemical balance by equal oscillation method.

c) Cutting and bending of glass tube, drawing jet and boring a cork.

2. Crystallisation :

Preparation of $CuSO_4$, $5H_2O$ crystal from $CuCO_3$.

3. Qualitative Analysis :

a) Identification of acid radicals :

Radicals : CO_3^{2-}, SO_3^{2--}, S^{2-}, NO^{2-}, Cl^-, Br^-, I^-, NO_3^-, SO_4^{2--} & PO_4^{3-}.

b) Identification of Basic Radicals :

Radicals : Ag^+, Pb^{2+}, Hg_2^{2+}, Cu^{2+}, Hg^{2+}, Bi^{3+}, As^{3+}, Sb^{3+}, Sn^{2+}, Al^{3+}, Fe^{3+}, Cr^{3+}, Co^{2+}, Ni^{2+}, Zn^{2+}, Mn^{2+}, Ba^{2+}, Sr^{2+}, Ca^{2+}, NH_4^+, Mg^{2+} , K^+ and Na+ (Dry Tests only).

4. Volumetric Analysis :

Single titration of acids and bases (three experiments to be done; one on direct determination of
normality of one of the solutions from that of the other and the other two, involving numerical calculations)

QUESTION PATTERN AND DISTRIBUTION OF MARKS

CHEMISTRY (PRACTICAL)

+2, 1st year Science

Full Mark : 30 Time : 3 Hrs

1. Salt analysis (Acid radical) - - 10 marks

Dry Test - 04 mark

Wet Test - 06 mark

2. Crystallisation / Single titration –10 marks

3. Viva-Voce - - 06 marks

4. Record - - 04 marks

CHEMISTRY

for 2nd year Science

Unit I: Solid State

Classification of solids based on different binding forces: molecular, ionic, covalent and metallic solids, amorphous and crystalline solids (elementary idea). Unit cell in two dimensional and three dimensional lattices, calculation of density of unit cell, packing in solids, packing efficiency, voids, number of atoms per unit cell in a cubic unit cell, point defects.

Unit II: Solutions

Types of solutions, 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 colligative properties (Preliminary idea only).

Unit III: Electrochemistry

Electrolytes and non-electrolyte conductor, conductance in electrolytic solutions, specific and molar conductivity, variation of conductivity with concentration, Kohlrausch's law, electrolysis and laws of electrolysis (elementary idea), dry cell electrolytic cells and Galvanic cells, 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.

Unit IV: Chemical Kinetics

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

Unit V: Surface Chemistry

Adsorption - physisorption and chemisorption, factors affecting adsorption of gases on solids, catalysts, 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.

Unit VI: General Principles and Processes of Isolation of Elements

Principles and methods of extraction - concentration, oxidation, reduction - electrolytic method and refining.

Unit VII: p - Block Elements

Group15 Elements: General introduction, electronic configuration, occurrence, oxidation states, trends in physical and chemical properties; nitrogen preparation properties & uses; compounds of nitrogen, preparation and properties of ammonia, oxides of nitrogen (Structure only); Phosphorus – allotropic forms.

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, 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 (structure only).

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

Unit VIII: d and f Block Elements

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

Unit IX: Coordination Compounds

Coordination compounds - Introduction, ligands, coordination number, colour, magnetic properties and shapes, IUPAC nomenclature of mononuclear coordination compounds. Bonding, Werner's theory, VBT and CFT.

Unit X: Haloalkanes and Haloarenes

Haloalkanes: Nomenclature, nature of C-X bond, preparation from alcohols, halogenations of alkanes, alkenes, Sandmeyer's reaction, halogen exchange reaction, physical properties and chemical properties, nucleophilic substitution reactions (unimolecular and bimolecular), stereochemical effect of substitution reaction, elimination reaction, Electrophilic substitution reactions (halogenations, nitration, sulphonation), Friedel-Crafts reaction, reaction with metals (Wurtz Fittig and Fittig reaction), optical rotation.

Haloarenes: Nature of C - X bond, substitution reactions (Directive influence of halogen in monosubstituted compounds only.

Unit XI: Alcohols, Phenols and Ethers

Alcohols: Nomenclature, methods of preparation, from alkenes, carbonyl compounds, Grignard reagent, physical properties and chemical properties (of primary alcohols only),esterification, reaction with (hydrogen halide, phosphorus trihalide Oxidation (identification of primary, secondary and tertiary alcohols mechanism of dehydration).

Phenols: Nomenclature, methods of preparation from haloarenes, benzene sulphonic acid, diazonium salt, cumene, physical properties and chemical properties, acidic nature of phenol, esterification, Electrophilic aromatic substitution (halogenations, nitration) Reimer-Tiemann reaction, reaction with Zn dust, oxidation.

Eithers : Nomenclature, methods of preparation dehydration of alcohols, Williamson synthesis, physical properties and chemical properties, formation of alcohols, Electrophilic substitution (halogenations, nitration, Friedel-Craft reaction.

Unit XII : Aldehydes, Ketones and Carboxylic Acids

Aldehydes and Ketones : Nomenclature nature of carbonyl group methods of preparation, from alcohols (oxidation and dehydrogenation), ozonolysis of alkenes, hydration of alkynes, preparation of ketones from acyl chlorides and nitriles, preparation of acetone by Friedel-Craft acylation reaction, physical properties and chemical properties, nucleophillic addition reaction with hydrogen cyanide, sodiumhydrogen sulphite, reaction with NH_3 and NH_2-G compounds (Hydrazine, hydroxyl amine, semicarbazide, phenyl hydrazine, 2,4-dinitro phenylhydrazine), alcohol, Grignard reagent, Clemmensen reaction, Wolff-Kishner reduction, Fehling's Test, Tollen's Test, haloform reaction, Aldol condensation, Cannizzaro's reaction, special reaction of (formaldehyde with ammonia and acetone with concentrated sulphuric acid), Electrophilic substitution reactions of aromatic aldehydes and ketones.

Carboxylic Acids : Nomenclature, acidic nature, methods of preparation, from primary alcohols, aldehydes, anhydrides, esters, nitriles and Grignard reagent, preparation of benzoic acid from toluene and benzanilide, physical properties, chemical properties, reaction with (metals, alkalies, PCl_3, PCl_5, $SOCl_2$, NH_3), formation of anhydride, esterification, reduction, decarboxylation, Hell-Volhard-Zelinsky reaction. Substitution reaction of benzoic acid (nitration, bromination)

uses.

Unit XIII : Organic compunds containing Nitrogen

Amines : Nomenclature classification, structure, methods of preparation, reduction of (nitrocompounds, nitriles, amides) amonolysis of alkyl halides, Hoffmann bromamide degradation, Gabriel phthalamide synthesis. Physical properties and chemical proporties, basic character of amines, alkylation, acylation, carbylamines reaction, identification of primary, secondary and teritary amines (reaction with nitrous acid and arylsulphonyl chloride). Electrophilic substitution reactions of aniline (nitration, sulphonation, bromination). Cyanide and Isocyanides-will be mentioned at relevant places in context.

Unit XV: Polymers

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

Unit XVI : Chemistry in Everyday life

Chemical in Medicines- Angesics, traqulizers antiseptics, disinfectants, antimicrobials, antifungal, drugs, antibiotics, antacids, antihistamines.

Cleansing agents – Soap & detergents, cleansing action

CHEMISTRY (PRACTICAL)

+2, 2nd Year Science

(Detailed syllabus)

1. Crystallisation

a) Preparation of Mohr's Salt ($FeSO_4$, $(NH_4)_2SO_4$, $6H_2O$] crystal

b) Preparation of potash alum [$K_2Al_2(SO_4)_3$, $24H_2O$] crystal

2. Quantitative Analysis :

Double titration : Two experiments to be done - i) one acid two alkalis double titration and ii) two acids one alkali double titration.

3. Qualitative Inorganic Analysis :

Wet tests for basic radicals : Wet tests for the following basic radicals be done.

Group-I basic radicals : Ag^+, Pb^{2+}, Hg_2^{2+}

Group-II basic radicals : Hg^{2+}, Cu^{2+}, Bi^{3+}, As^{3+}, Sb^{3+}, Sn^{2+} & Sn^{4+}

Group-IIIA basic radicals : Fe^{3+}, Al^{3+} & Cr^{3+}

Group-IIIB basic radicals : Co^{2+}, Ni^{2+}, Zn^{2+} & Mn^{2+}.

Group-IV basic radicals : Ba^{2+}, Ca^{2+} & Sr^{2+}.

Group-V basic radicals : NH_4^+, Mg^{2+}, K^+, Na^+.

Identification of unknown basic radicals.

[For Identification of unknown basic radicals both dry and wet tests are to be performed]

QUESTION PATTERN AND MARKS DISTRIBUTION

CHEMISTRY (PRACTICAL)

+2, 2nd year Science

Full Mark : 30 Time : 3 Hrs

1. Salt analysis (Identification of basic radical only) 10 marks

Dry Test -- 04 mark

Wet Test -- 06 mark

2. Crystallisation / Double Titration -- 10 marks

3. Viva-Voce - - 06 marks

4. Record - - 04 marks

REVISED SYLLABUS
COMPUTER SCIENCE
CLASS +2 1ST YEAR (THEORY) C++

Duration: 3 hours Total Marks: 70

Unit No.	Unit Name	Marks
1.	COMPUTER FUNDAMENTALS	10
2.	PROGRAMMING METHODOLOGY	12
3.	INTRODUCTION TO C++	14
4.	PROGRAMMING IN C++	34

UNIT-1: COMPUTER FUNDAMENTALS

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

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

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

Operating System: Need for Operating System, Functions of Operating System (Processor Management,Memory Management, File Management and Device Management), Types of Operating System-Interactive (GUI based), Time Sharing, Real Time and Distributed, Commonly used Operating System: UNIX, LINUX,Windows, (Bharat Operating System Solutions); **Utility Software:** Anti Virus, File Management tools, Compression tools and Disk management tools (Disk Cleanup, Disk Defragmenter, Backup).

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

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

Microprocessor: Basic concepts, Clock speed (MHz, GHz), 16 bit, 32 bit, 64 bit, 128 bit processors;, and EPIC (Explicitly Parallel Instruction Computing).

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

Primary Memory: Cache, RAM, ROM

Secondary Memory: Fixed and Removable storage - Hard Disk Drive, CD/DVD Drive, Pen Drive, Blue Ray Disk.Input Output Ports/ Connections: Serial, Parallel and Universal Serial Bus, PS-2 port, Infrared port, Bluetooth,Firewire.

UNIT-2: PROGRAMMING METHODOLOGY (28 Theory + 10 Practical) Periods

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

Problem Solving Methodologies: Understanding of the problem, Solution for the problem, Identifying minimum number of inputs required for output, Writing code to optimizing execution time and memory storage,step by step solution for the problem, breaking down solution into simple steps (modular approach),

Problem Solving: Introduction to Algorithms/Flowcharts.

UNIT-3: INTRODUCTION to C++ (44 Theory + **36** Practical) Periods

Getting Started: C++ character set, C++ Tokens (Identifiers, Keywords, Constants, Operators,), Structure of a C++ Program (include files, main function), Header files - iostream.h, iomanip.h, cout, cin; use of I/O "operators (<<and>>), Use of endl and setw ( ), Cascading of I/O operators, compilation , Error Messages; Use of editor, basic commands of editor, compilation, linking and execution.

Data Types, Variables and Constants: Concept of Data types; Built-in Data types: char, int , float and double; Constants: Integer Constants, Character constants (- \n, \t, \b), Floating Point Constants, StringConstants; Access modifier: const; Variables of built-in-data types, Declaration/ Initialization of variables,Assignment statement, Type modifier: signed, unsigned, long **Operator and Expressions:** Operators: Arithmetic operators (-,+,*,/,%), Assignment operator (=), **C++** shorthands (+=, -=,*=,/=,%=) Unary operators (-), Increment (+ +) and Decrement + (-)Operators, Relation operator (>,>=,<=,=,!=), Logical operators (!,&&,II), Conditional Operator:
<condition>?<if false>; Precedence of Operators; Automatic type conversion in expressions, Type casting

UNIT 4: PROGRAMMING IN C++ (50 Theory + **48** Practical) Periods

Flow of control

Conditional statements: if else, Nested if, switch..case..default, use of conditional operator, Nested switch..case, break statement (to be used in switch..case only); Loops: while, do - while, for andNested loops

Inbuilt Functions

Header File Categorization	**Header File**	**Function**
Standard input/output functions	stdio.h	gets ( ), puts ( ) isalnum ( ), isalpha ( ), isdigit ( ), islower ( ), isupper ( ), tolower ( ), toupper( )
Mathematical Functions	math.h	fabs ( ), pow ( ), sqrt ( ), sin ( ), cos ( ), abs ( )
Other Functions	stdlib.h	randomize ( ), random ( )

Introduction to user-defined function and its requirements.

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

Structured Data Type

Arrays: Introduction to Array and its advantages.

One Dimensional Array: Declaration/initialization of One-dimensional array, Inputting array elements,accessing array elements, manipulation of array elements (sum of elements, product of elements, average of elements, linear search, finding maximum/minimum value)

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

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

CLASS +2 1ST YEAR (PRACTICAL) – C++

Duration: 3 hours Total Marks: 30

1. Programming in C++ 12 Marks

One programming problem in C++ to be developed and tested on Computer during the examination. Marks are allotted on the basis of following:

Logic : 7 Marks

Documentation : 2 Marks

Output presentation : 3 Marks

2. One logical problem to be solved through flow charts. 04

3. Project Work 08

Problems using String, Number, array

General Guidelines: Initial Requirement, developing an interface for user (it is advised to use text based interface screen), developing logic for playing the game and developing logic for scoring points

Memory game: A number guessing game with application of 2 dimensional arrays containing randomly generated numbers in pairs hidden inside boxes.

4. Practical File

(a) Record of the configuration of computer system used by the student in the computer lab (by exploring inside computer system in the first 2 lab classes).

(b) Must have minimum 20 programs from the topics covered in class +2 1st yr course.
Programs on Control structures
Programs on array manipulations(1D & 2D)
*1 mark is for innovating while developing programmes.

6. Viva Voce **02 Marks**

Viva will be asked from the syllabus covered in class +2 1st yr and the project developed by the student(s).*1 mark is for innovating while developing programme.

5. 3+1

CLASS +2 2NDYEAR (THEORY) - C++

Duration : 3 hours Total Marks: 70

Unit No.	Name	Marks
1.	OBJECT ORIENTED PROGRAMMING IN C++	30
2.	DATA STRUCTURE	14
3.	DATABASE MANAGEMENT SYSTEM AND SQL	8
4.	BOOLEAN ALGEBRA	8
5.	COMMUNICATION TECHNOLOGIES	10
	Total	**70**

Unit 1: Object Oriented Programming in C++ (50 Theory + 40 Practical) Periods

Object Oriented Programming: Concept of Object Oriented Programming - Data hiding, Data encapsulation,Class and Object, Abstract class and Concrete class, Polymorphism (Implementation of polymorphism using Function overloading as an example in C++); Inheritance, Advantages of Object Oriented Programming over earlier programming methodologies, **Implementation of Object Oriented Programming concepts in C++:** Definition of a class, Member of aclass - Data Members and Member Functions (methods), Using Private and Public visibility modes, default visibility mode (private); Member function definition: inside class definition and outside class definition using scope resolution operator (::); Declaration of objects as instances of a class; accessing members from object (s), Objects as functionarguments- pass by value and pass by reference;

Constructor and Destructor: Constructor: special characteristics, declaration and definition of a constructor,default constructor, overloaded constructors, copy constructor, constructor with default arguments;

Destructor: Special Characteristics, declaration and definition of destructor;

Inheritance (Extending Classes): Concept of Inheritances, Base Class, Derived classes, protected visibility mode; Single level inheritance, Multilevel inheritance and Multiple inheritance, Privately derived, publicly derived and Protectedly derived class, accessibility of members from objects and within derived class (es);

Unit-2

Data File Handling: Need for a data file, Types of data files - Text file and Binary file;

Text File: Basic file operations on text file: Creating/Writing text into file, Reading and Manipulation of text from an already existing text File (accessing sequentially).

Binary File: Creation of file, Writing data into file, Searching for required data from file, Appending data to a file, Insertion of data in sorted file, Deletion of data from file, Modification of data in a file;Implementation of above mentioned data file handling in C++; Components of C++ to be used with file handling:

Header file: fstream.h; ifstream, ofstream, classes; Opening a text file in in, out, and app modes;Using cascading operators (»«) for writing text to the file and reading text from the file; open (), get (), read ()put (), write(), getline() and close() functions; Detecting end-of-file(with or without using eof() function),tellg(), tellp(), seekg().seekp();

Pointers:

Introduction to Pointer, Declaration and Initialization of Pointer; Dynamic memory allocation/ deallocation operators: new, delete; Pointers and Arrays: Array of Pointers, Pointer to an array (1 dimensional array),Function returning a pointer, Reference variables and use of alias; Function call by reference. Pointer to structure: De-reference/Deference operator:"*, ->; self referencial structure;

UNIT 3: DATABASE MANAGEMENT SYSTEMA AND SQL

Data base Concepts: Introduction to data base concepts and its need.

Relational data model: Concept of domain, tuple, relation, key, primary key, alternate key, candidate key;

Relational algebra : Selection, Projection, Union and Cartesian product;

Structured Query Language:

General Concepts: Advantages of using SQL, Data Definition Language and Data Manipulation Language;

Data Types: NUMBER/DECIMAL, CHARACTER/VARCHAR/VARCHAR2, DATE;

SQL COMMANDS: CREATE TABLE, DROP TABLE, ALTER TABLE, UPDATE ...SET. INSERT, DELETE;SELECT, DISTINCT, FROM, WHERE, IN, BETWEEN, GROUP BY, HAVING, ORDER BY;

SQL functions: SUM ( ), AVG ( ), COUNT ( ), MAX ( ) AND MIN ( ); Obtaining results (SELECT query) from 2 tables using equi-join, Cartesian product and Union only.

Note: Implementation of the above mentioned commands could be done on any SQL supported software on one or two tables.

UNIT 4: BOOLEAN ALGEBRA

Role of Logical Operations in Computing.

Binary-valued Quantities, Boolean Variable, Boolean Constant and Boolean Operators: AND, OR, NOT;

Truth Tables; Closure Property, Commutative Law, Associative Law, Identity law, Inverse Law, Principle of Duality, Idempotent Law, Distributive Law, Absorption Law, Involution Law, DeMorgan"s Law and their applications; Obtaining Sum of Product (SOP) and Product of Sum (POS) form the Truth Table, Reducing Boolean Expression (SOP and POS) to its minimal form, Use of Karnaugh Map for minimization of Boolean expressions (up to 4 variables);

UNIT 5: NETWORKING AND OPEN SOURCE SOFTWARE

Evolution of Networking: ARPANET, Internet, Interspace Different ways of sending data across the network with reference to switching techniques (Circuit and Packet switching).

Data Communication terminologies: Concept of Channel, Bandwidth (Hz, KHz, MHz) and Data transfer rate (bps, Kbps, Mbps, Gbps, Tbps).

Transmission media: Twisted pair cable, coaxial cable, optical fiber, infrared, radio link, microwave link and satellite link.

Network devices: Modem, RJ45 connector, Ethernet Card, Router, Switch, Gateway, wifi card.
Network Topologies and types: Bus, Star, Tree, PAN, LAN, WAN, MAN.
Network Protocol: TCP/IP, File Transfer Protocol (FTP), PPP, SMTP, POP3 Remote Login (Talent), and Internet Wireless/Mobile Communication protocol such as GSM, CDMA, GPRS, and WLL.

Network Security Concepts:
Threats and prevention from Viruses, Worms, Trojan horse, Spams
India IT Act, Cyber Law, Cyber Crimes,

Introduction To Web services: WWW, Hyper Text Markup Language (HTML), Extensible Markup Language (XML); Hyper Text Transfer Protocol (HTTP); Domain Names; URL; Website, Web browser>. CLASS, +2 2ND YEAR (PRACTICAL) - C++

Duration: 3 hours Total Marks : 30

1. Programming in C++
One programming problem in C++ to be developed and tested in Computer during the examination Marks are allotted on the basis of following:

Logic	: 7 Marks
Documentation/Indentation	: 2 Marks
Output presentation	: 3 Marks

Notes: The types of problem to be given will be of application type from the following topics Arrays (One dimensional and two dimensional)Class(es) and objects

2. SQL Commands **05**
Five Query questions based on a particular Table / Relation to be tested practically on Computer during the examination. The command along with the result must be written in the answer sheet.

3. A digital circuit diagram (after reduction using k-map) to be given during the examination .The question must be written in the answer sheet. 02

4. Project Work 05
The project has to be developed in C++ language with Object Oriented Technology and also shouid have use of Data files. (The project is required to be developed in a group of 2-4 students) Presentation on the computer
Project report (Listing, Sample, Outputs, Documentations)
Viva
*1 mark is for innovation while writing programme

5. Practical File 03+01*
Must have minimum 20 programs from the following topics

Arrays (One dimensional and two dimensional, sorting, searching, merging, deletion" & insertion of elements)Class(es) (Creation, Updation, Query) Any computational Based problems15 SQL commands along with the output based on any table/relation:

6. Viva Voce
Viva will be asked from syllabus covered in class +2 2nd year and the project developed by student.

Guidelines for Projects (Class +2 1st and 2nd year)

1. Preamble

The academic course in Computer Science includes on Project in each year. The Purpose behind this is to consolidate the concepts and practices imparted during the course and to serve as a record of competence.

A group of 2-3 students as team may be allowed to work on one project.

2. Project content

Project for class +2 1st year can be selected from the topics mentioned in the syllabus or domains on the similar lines.

Project for class +2 2nd year should ensure the coverage of following areas of curriculum:

a) Flow of control

b) Object Oriented Programming C++

c) Data File Handling

Theme of the project can be

Any subsystem of a System Software or Tool

Any Scientific or a fairly complex algorithmic situation

School Management, Banking, Library Information System, Hotel or Hospital Management System, Transport query system

Revised Syllabus for the session 2020-21
Economics

PAPER-I
INDIAN ECONOMYAND STATISTICS

A. INDIAN ECONOMY

I. Status of Indian Economy — 08 Periods, 12Marks

- Basic characteristics of contemporary Indian economy
- Demographic features, Adverse effects of population growth and Population Policy of India

II. Sectoral Development — 10 Periods, 15 Marks

- Agriculture- Importance, low productivity and its causes, Green Revolution, present agricultural situation .
- Industry - Importance, Industrial Policies - 1991.
- Infrastructure
  Social Infrastructure (Education and Health)

III. Economic Planning and Economic Reforms — 07 Periods, 13 Marks

- Planning -Meaning,Need. Objectives and Achievements , Niti Ayog

IV. Current Challenges Facing the Indian Economy — 15 Periods, 20 Marks

Poverty - absolute and relative poverty, causes of poverty, important poverty alleviation programmes currently in place .

- Unemployment and underemployment - causes, dimensions and government programmes currently in place.
- Inflation - causes and anti-inflationary measures in place.

B. STATISTICS FOR ECONOMICS

V. Introductory Statistics

- Meaning, scope, importance, uses and limitations of statistics in economics .
- Sources of statistical data- primary and secondary sources, NSSO and Census of India as sources of secondary data in India.
- Methods of collection of primary data - census and sampling methods and their relative merits and demerits

VI. Frequency Distribution

- Meaning and types of variables and frequency distribution.
- Organisation of Data-Basics, Presentation of data - Tabular and diagrammatic presentation, Bar diagram, Pie diagram, Histogram, Frequency Polygon, Ogives, line graphs, Historigrams.

VII. Statistical Methods -1 14 periods /15 marks

- Measures of Central Tendency- Simple and Median, Mode

Paper-II
Elementary Micro and Macro Economics

1. INTRODUCTORY MICRO ECONOMICS

I. Introduction

- Definition, scope and subject matter of economics.
- Meaning of economy and central problems of an economy- scarcity and choice, what, how and for whom to produce ?
- Basic concepts - wants, utility, goods, value, price and wealth.

II. Consumption and Demand 14 Periods
15 Marks

- Laws of consumption - marginal and total utility, law of diminishing marginal utility, law of equimarginal utility and conditions of consumer's equilibrium
- Demand - meaning and determinants, individual and market demand, demand schedule and demand curve, movement along and shifts in the demand curve.
- Price elasticity of demand - concept, determinants, measurement of price elasticity of demand; percentage and geometric methods (linear demand curve), relation of price elasticity of demand with total expenditure.

III. Production

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- Meaning of production and production function - short run and long run.
- Total. Average and Marginal Product.
- **Law** of variable proportions and returns to a factor .

IV. Cost, Revenue and Supply (12 periods/15 marks)

- Cost- money and real cost, implicit and explicit cost, fixed and variable cost, Total, average and marginal costs in the short run and their relationship (simple analysis)
- Revenue- Total, average and marginal revenue and their relationship
- Supply - meaning and law of supply

V. Market

2. Meaning and forms of market, pure and perfect competition, price determination under perfect competition and effects of shifts in demand and supply
- Meaning and features of monopoly, monopolistic competition and oligopoly .

B. **INTRODUCTORYMACRO ECONOMICS**

VI. Introduction 4period / 5marks

• Meaning of macroeconomics, Distinction between macro-and

VIII. Public Finance

1. Meaning of Public Finance and Difference between public and private finance .
2. Budget - Meaning and objectives, balanced and unbalanced budget, surplus and deficit budget.

BOOK PRESCRIBED:

Bureau's Higher Secondary (+2)Economics, Part-I & Part-II Published by Odisha State Bureau of Textbook Preparation & Production, Bhubaneswar

Revised Syllabus for 2020-21 session

ELECTRONICS

THEORY PAPER -1(1ST YEAR)

There will be a theory paper of 70 marks and a practical paper of 30 marks after completion of one year.

Each student will be eligible to appear the practical examination only if he/she has performed at least 6(Six) experiments.

Thegrading in theory will be according to the following distribution of marks.

Group -A : Very short questions including MCQ(compulsory), Short Answers

Group -B : Value based questions

Group -C : Long answer questions (3 questions to be answered out of 5,1 questions will be set up from each unit)

The grading in practical will be according to the following distribution of marks.

(a) Record - marks

(b) Viva - marks

(c) One Experiment - marks

Theory paper (1st year)

Unit -1 **Periods -9**

(a) Resistance :- Types of resistance, variable resistance, color code, power rating, specific resistance,

(b) Capacitance :- Capacitance, types of capacitors, variable capacitors, color codes, charging and discharging of capacitor, energy stored in a capacitor,

(c) Inductance :- Faraday's and Len's Law, self and mutual Inductance, types of inductors, inductance of a solenoid, energy stored in an inductor,

Unit -II **Periods -12**

(a) Circuits:- DC Circuits-RC,RL and LC circuits for growth and decay, AC Cirsuits-pure R,Iand C circuits and RC, RL, LC

(b) Thermo ionic Emission :- Types of electron emission, work function,
thermo ionic emission, Richardson, Richardson-Dushman equation(NO Derivation), Chaild's law (No Derivation).

(c) Vacuum Tubes :- Diode valve working, characteristic and uses, Triode working, characteristic, constant of triode, relation between them, limitation of triode valve, use of triode as an amplifier,idea on tetrode and pentode valve.

Unit-III **Periods -9**

(a) Semi conductor :- , Explanation of conductor, semiconductor and insulator, Intrinsic and extrinsic semiconductor, P type and N type semiconductor , Energy band of extrinsic semiconductor .

(b) PN junction:- PN junction, Potential barrier, Depletion layer, forward bias and reverse bias, characteristic, Zenner diode, Characteristic of LEDand Photodiode.

(c) Rectifier and filter :- Half wave, centre tapped full wave and bridge rectifier, effciency, Ripple factor, capacitor filter, imductor filter, and RC filter(qualitative discussion of filters only).

Unit-IV **Periods -12**

(a) Transistor:- PNP and NPN transistor, working, input, output and transfer characteristic of

CB,CE input and output impedance, current amplification factor and relation between them, leakage current, DC and AC load line, operating point, Q point.

(b) Transistor biasing :-

transistor biasing of base resistor, feeback resistor and potential divider method.

(c) Amplifiers:- CB,& CE amplifiers with their voltage, current and power gain, Phase relationship between input and output of these amplifiers. Qualitative discussion of class A, B,

and C amplfiers with reference to load line, Q point, and effciency.

Unit V **Periods -8**

(a) Instruments:- Multimeter construction and working, VTVM construction and working, Elementary idea on Microphone and loud speakers

(b) Integrated circuits:- IC, basic idea, ICclassifiction, Monolithic IC, making, fabrication of

components, thick and thin films (idea only),

PRACTICAL(1ST Year)

EXPERIMENTS

1. Verification of ohm's law, determination of resistance using Voltmeter and Ammeter.
2. Varification of laws of combination of resistance by meter bridge method.
3. Determination of specific resistance of resistance of resistance wire by PO Box method.
4. To draw characteristance curve of diode valve for different filament voltage. Hence determine plate resistance.
5. To draw characteristic curve of PN junction diode for forword bias only for tw0 junction diodes.
6. To draw charecteristic curve of Zenner diode for reverse bias only.

Science Stream 125

7. To calculate the value of carbon resistors from their color code for at least 10 resistors.
8. Determination of effciency and ripple factor with and without filter for half wave rectifier.
9. Recognition of electronics components like resistores, capacitors, inductors, transfromers, diodes, triode, PN junction, transistors and IC.
10. Practical of soldering:-

(a) Resistors in series, (b) Resistors in parallel

(c) Resistors-capacitors in series.

(d) Resistors-capacitors in parallel.

ELECTRONICS
THEORY PAPER (2nd YEAR)

- There will be a theory paper of 70 marks and a practical paper of 30 marks after completion of second year.
- Duration of examination of theory and practical paper will be 3 hours.
- Each student will be eligible to appear the practical examination only if he/she has performed at least 8(eight) experiments.

- The grading in theory will be according to the following distribution of marks.

Group A

1. Multiple choice/Fill in the blanks / abbreviations.
2. Answer in one sentence.
3. Short answers

Group B

4. Value based short questions

Group C

5. Long questions (3 out of 5,1 question will be set up from each unit)

The grading in practical will be according to the following distribution of marks.

a) Record -04

b) Viva -06

c) One experiment -20

THEORY

Unit -1 **Periods -10**

(a) Amplifiers:- -RC coupled transistor amplifiers, voltage gain, frequency Response Curve, Band Width, Gain Band Width product, Advantags and use : power Amplifiers-, working principle,

(b) Freedback amplifiers:- Freeback technique, gain, negative feedback, voltage feedback am`plifiers, current feed back amplifiers, effect of negative feed back on input and output impedance, voltage gain,

(c) Oscillators:- Condition for sustained oscillation, Bark-haussen criterion, tank circuit with positive feedback,, Hartley oscillator, colpitt oscillator, , Crytal oscillator and its frequency stabillty. (Qualitative analysis of all theseoscillator).

Unit-II **Periods -10**

(a) Modulation and transmitters:- Type of modulation, amplitude modulation, side band,power dissipation in side band, modulation index and its significance, AM transmitter(explanation in block diagram),

Frequency modulation:super heterodyne receiver (explanation in block diagram),FM demodulation FM detection, block diagram of FM receiver and explanation of each stage,

Unit-III **Periods -8**

(a) Digital Electronics:- Decimal and binary numbes, conversion, binary arithmetic, Boolean algebra, De Morgan's theorems.

Logic gates - OR,AND, NOT,NAND,NOR,XOR, circuit symbol, use, truth table only (No electronics circuit for NAND, NOR & XOR)

(b)Antenna :- Priciple and basic idea, types of antenna, dipole antenna, Marconi Yagi antenna, use in transmission,

Unit-IV **Periods -8**

(a) Propagation of Radio Waves:- Modes of propagation of radio waves: ground waves, sky waves, space waves, skip distance, maximum usable frequency, general idea about statellite communication,

(b) TV :- Principle of TV transmission, , TV transmitter

and receiver (explanation in block diagram).

Unit-V **Periods -8**

(a) Power Electronics :- Idea about JFET,SCR, , UJT, their working, characteristics and uses.

(b) RADAR and CRO:- Basic principle of Radar, Block diagram of Radar, its function and use

Cathode Ray Oscilloscope, Basic idea and use with working.

Practical

1. Use of multimeter to measure resistance and compare them with color code. Hence, verity the law of combination of resistance. Measurement of DC and AC voltage.
2. Use of VTVM to measure resistance and compare them with color code. Hence verify combination of resistance. Measurement of DC and AC voltage.
3. To drew characteristic curve for two junction diode in forward and reverse bias condition. Heance calculate forward bias resistance.
4. To draw characteristic curve for zenner diode in reverse and forword bias condition.
5. To draw plate and mutual characterstic of triode valve and to determine the valve constants (rp,gm,u) from graph.
6. Input, output and transfer characterstic of PNP /NPN transistor in CB configuration.Hence findout (ri,ro) from graph (ri-input resistance, ro -output resistance, current amplification factor).
7. Input, output and transfer characteristic of a PNP/NPN transistor in CE configuration. Hence find out ri,ro.
8. Determine of effciency and ripple factor with and without filter for full wave and bridge rectifier.
9. To study the characteristic of FET and find its parameters from the graph.
10. To study the characteristic of SCR for different gate current and find out its parameters from graph.
11. Study of variation of Impedance of a series LCR circuit with frequency and hence find out the resonant frequency.
12. Study of variation of Impedance of a parallel LCR circuit with frequency and hence find out the resonant frequency.
13. Study of Zenner diode as a voltage stabilizer.

QUESTION WISE BREAK UP

Type of Question	Mark per Question	Total No.of Question	Total marks
VSA	1	5	05
SA-I	2	5	10
SA-II	3	12	36
VBQ	4	1	04
LA	4	3	15
Total		26	70

[VSA-Very Short Answer, Sa-Short Answer, VBQ-Value Based Question (appraise, judge and/
or justify the value or worth of a decision or outcome or to predict out comes based on values),
LA-Long Answer]

Books Recommended :

1. Bureau's Higher Secondary(+2)Electronics, Part-I & II
Published by Odisha State Bureau of Textbook Preparation and Production, Bhubaneswar.

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Revised Syllabus for session 2020-21
ENGLISH
(Arts/Science/Commerce Stream)

Yearly Period -70

+2 Ist year (Detailed Syllabus)

UNIT-I : PROSE

i. Standing Up for Yourself	Yevgeny Yevtushenko
ii. The Legend behind a Legend	Hariharan Balakrishnan
iii. In London In Minus Fours	Louis Fischer

UNIT-II : POETRY

i. Stopping by Woods on a Snowy Evening	Robert Frost
ii. Oft. in the Stilly Night	Thomas Moore
iii. The Inchcape Rock	Robert Southey
iv. To My True Friend	Elizabeth Pinard

Unit-III : NON DETAILED STUDY

i. Three Questions	Leo Tolstoy
ii. After Twenty Years	O. Henry
iii. The Open Window	Saki

UNIT-IV : WRITING SKILLS

i. Writing a Paragraph
ii. Developing Ideas into Paragraphs
iii. Writing Personal Letters and Notes
iv. Writing Applications, Official Letters and Business letters
v. Using Graphics

UNIT-V : GRAMMER

i. Modal Verbs
ii. Prepositions
iii. The Imperatives

ENGLISH
2nd Year (No of Period reduced to 58)

UNIT-I : PROSE

i. My Greatest Olympic Prize	Jesse Owens
ii. On Examinations	Winston S. Churchill
iii. The Portait of a Lady	Khushwant Singh

Unit -II : POETRY

i. Daffodils	William Wordsworth
ii. The Ballad of Father Gilligan	William Butler Yeats
iii. A Psalm of Life	Henry W. Longfellow

Unit -III : NON DETAILED STUDY

i.	The Doctor's Word	R.K. Narayan
ii.	Mystery of the Missing Cap	Manoj Das
iii.	. Stay Hungry. Stay Foolish	Steve Jobs

Unit -IV : WRITING SKILLS

i. Interpreting Graph, Charts, Tables and diagrams etc
ii. Reporting Events and Business Matters
iii.. Extended Writing

Unit -V : GRAMMAR

i. The Passive
ii. Direct and Reported Speech
iii. Interrogatives
iv. Phrasal Verbs

Book Prescribed :*Invitation to English - 1,2,3 & 4* , Published by Odisha State Bureau of Text Book Preparation and Production, Bhubaneswar.

ALTERNATIVE ENGLISH
(Arts/Science/Commerce Stream)
(Detailed Syllabus)
FIRST YEAR
(No of Periods 50)

Unit -I Prose

i. The Adventure of Learning
ii. Men and Women
iii. Modern Living .

Unit -II Poetry

i. Ecology (A.K.Ramanujan)
ii. Dog's Death (John Updike)
iii. The Fog (W.H.Davies)

Unit -III Short Stories

i. The Rainbow-Bird (Vance Palmer) xi
ii. The Eyes Have it (Ruskin Bond) xii

Unit -IV One-Act Plays

i. Mother's Day (J.B. Priestley) xvii
ii. The Unexpected (Ella Adkins) xviii

Unit-V GRAMMAR & USAGE

i. Tense and Aspect
ii. Modals
iv. The Passive
v. Prepositions and Phrasal Verbs

SECOND YEAR
(No.of Periods-50)

Units -I Prose

i. The Wonder World of Science v
ii. Our Environment vii
iii. The World of Business viii

Unit -II Poetry

SI. No.	**Units**
i. Indian Children Speak (Juanita Bell)	vi.
ii. The Goat Paths (James Stephen)	vii
iii. Of a Questionable Conviction (Jayanta Mahapatra)	viii

Short Stories

Units to be studied :

SI. No.	**Units**
i. The Tree (Manoj Das)	xv
ii. The Watch Man (R.K.Narayan)	xvi

One Act Plays

Units to be studies

SI. No.	**Units**
i. The Hour of Truth (Pefciva! Wilde)	xix

C. GRAMMAR & USAGE

i. Revision of Tense and Aspect'
ii. Revision of Prepositions and Phrasal Verbs .
iii. Linking Devices

Books Prescribed : Approches to English-I
Approches to English-II

Published by - Odisha State Bureau of Textbook Preparation & Production, Pustak Bhavan Bhubaneswar.

N.B : No Change in Question Pattern

Revised Syllabus for 2020-21
GEOGRAPHY

+2 1ST YEAR (ARTS / SCIENCE)

Course Structure
Part/Unit **Topic of Chapter**

Unit-1 : GEOGRAPHY AS A DISIPLINE
04 PERIODS

- Geography as an integrating discipline, as a science of spatial attributes
- Branches of geography, physical geography and human geography

Unit-2 : THE EARTH

- Origin and evolution of the earth; interior of the earth.
- Earthquake and volcanoes; cause type and effects.

Unit-3 : LANDFORMS

- Rocks: major types of-rocks and their characteristics.
- Geomorphic processes: weathering, , erosion and deposition, soil formation.

Unit-4 : CLIMATE

- Atmosphere: composition and structure, elements of weather and climate
- Insolation-angle of incidence and
- Pressure-pressure belts; winds-planetary, seasonal and and fonts; tropical and extra tropical cyclones.
- Precipitation-evaporation; condensation-dew, frost, fog, mist and , Rainfalltypes
- global warming and climatic changes.

Unit-5 : HYDROSPHERE

- .
- Oceans-distribution of temperature and salinity.
- Movement of ocean water-wave, tides and currents;
-

Umt-6 : BIOSPHERE

- Biosphere-; biodiversity and conservation:
- Map work on identification of features based on 1 to 6 units on the outline/ physical/political map of the world.

Part-B : INDIA-PHYSICAL ENVIRONMENTUnit-7 : INTRODUCTION
04 PERIODS

- Location,

Unit-8 : PHYSIOGRAPHY

- Structure and relief; physiographic division (with special reference to odisha)
-

Unit-9 : CLIMATE, VEGETATION AND SOIL

- Weather and climate-spatial and temporal distribution of temperature, pressurewind and rainfall,
- Natural vegetation-forest type and distribution, ; biosphere reserve. (with special reference to Odisha)
- Soils- major types (ICAR's clarification) and their distribution,

Unit-10 : HAZARDS AND DISASTERS:CAUSES CONSEQUENCES AND MANAGEMENT

- Floods,
- Droughts: types and impact.
- OTBA

PART-C : PRACTICAL WORK 50 PERIODS

Unit-1 : FUNDAMENTALS OF MAPS 20 PERIODS

-
- Maps- types; scales -types; construction of simple linear scale, measuring distance; finding direction and use of the symbol
- Map projection- latitude, longitude and time, typology construction and properties of projection conical with one standard parallel and

Unit-2 : TOPOGRAPHIC AND WEATHER MAPS 30 PERIODS

- Study of topographic map (1:50,000 to 1:25,000 survey of India map); contour cross section and identification of landforms-slopes, hill, valley, waterfall, cliffs; distribution of settlements.
- Use of weather instruments: thermometer, wet and dry -bulb thermometer, barometer, wind vane, rain gauge

REVISED GEOGRAPHY SYLLABUS
+2 2ND YEAR (ARTS/SCIENCE)

A. FUNDAMENTALS OF HUMAN GEOGRAPHY

Unit 1 : Human Geography: Nature and Scope

Unit 2 : People

Population-distribution, density and growth
Population change- spatial patterns and structure; determinants of population change; Age-sex ration;rural-urban composition;

Unit 3 : Human Activities

Primary activities- Concept and ; gathering, pastoral, mining, subsistence agriculture. Secondary activities- Concept; Manufacturing types household, small scale, large scale; agro based and mineral based industries; Tertiary activities- Concept; Trade, transport and tourism; Services;

Unit 4 : Transport, Communication and Trade

Land Transport- Road, Railways; Water Transport- In-land waterways; Air Transport- Intercontinental air routes Oil and gas pipelines

Unit 5 : Human Settlements 10 Periods

Settlement types- rural and urban, morphology of cities(, problems of human settlements in developing countries

Map Work 05 Periods

Map work on identification of features based on 1-5 Units of outline/physical/political map of World

B. INDIA; PEOPLE AND ECONOMY

Unit 6 : People 15 Periods

Population: Distribution, density and growth; composition of population- sex, rural-urban and Migration: International, National-causes and consequences

Unit 7 : Human Settlements

Rural Settlements- types and distribution

Urban Settlements- types, distribution and functional classification

Unit 8 : Resources and Development

Geographical conditions and

distribution of major crops(wheat, rice, tea, , sugarcane

agriculture development and problems. Water Resources- availability and utilisation irrigation, domestic, industrial and other uses; scarcity of water and conservation methods rain water harvesting and water shade management.

Mineral and energy resources- Distribution of metallic (Iron ore, Bauxite,

Non metallic(Mica, minerals; conventional (coal, petroleum,and non-conventional energy sources (, biogas) and conservation

Industries- Types, factor of industrial location; distribution and changing pattern of selected

industries- iron and steel, cotton textile,

Unit 9 : Transport, communication and international trade

Transport and communication- roads, railways, waterways and airways: Oil and gas pipelines;

Unit 10 : Population, settlement, resources & transport of Odisha

Distribution of population

Mineral Resources (Iron, Buxite, Coal) forest resources

Map Work 05 Periods

Map work on locating and levelling of features based on above units

on outline map of India

C. Practical Work

- Unit 1: (**Vertical bar diagram,Horizantal wheeldiagram**) and thematic mapping
- Unit 2: Field study of (**To submit a project)**
- Unit 3: Practical Record Book and Viva Voce

Revised Syllabus for the Session 2020-21

GEOLOGY

+2 1st Year Course

Theory Paper -I Full Marks - 70 marks Time- 3hours

Practical Paper -II Full Marks - 30 marks Time- 3hours

Scheme of Examination

Theory Paper

Time - 3hours

Full Marks - 70 marks

Unit - I: General Geology and Geomorphology

Unit - II: Crystallography

Unit - III: Mineralogy

Practical Paper

Time - 3hours

Full Marks - 30 marks

1. Crystallography
2. Mineralogy
4. Practical Records & Viva Voce

Detailed Syllabus in GEOLOGY -

PAPER -1

Time - 3hours

UNIT -1 **14 Period**

A. General Geology :-

1. Subdivision and Scope of Geology

2. Origin of the Earth

3. Age of the Earth

4. Internal constitution of the earth : Crust, Mantle, Outer Core, Inner Core

B. Geomorphology

1. Definition of Geomorphplogy
2. Weathering and Erosion
3. Geological Work of the following Exogenetic processes with respect to Weathering,
   Transportation and Deposition with their important Landforms
   (a) River
   (b) Glacier
   (c) Wind
4. Definition, Classification, Causes and Effects of the following Endogenetic processes:
   (a) Earthquake
   (b) Volcanoes

UNIT - II

CRYSTALLOGRAPHY 10 periods

1. Crystalline and Amorphous substances
2. Morphology of Crystal: Face, Form, Edge, Solid Angle and Interfacial angle, Zone
3. Symmetry Elements of Crystals : - Plane of symmetry, Axis of Symmetry, Centre of Symmetry
4. Crystallographic Axes, their relationship and classification of Crystals into Six systems
5. Parameters, Indices and Symbol of Crystals

6. Description of Normal Class of different crystal systems (Except **Monoclinic** &Triclinic)) with respect to: -

(a) Axial relationship

(b) Symmetry Elements

(c) Forms present (Both Tabular and description of each) and Minerals crystallised in these system (at least Three (previously FIVE))

UNIT - III

MINERALOGY 10 periods

1. Definition of Minerals
2. Physical properties of Minerals :-
   Form, Colour, Lustre, Streak, Hardness, Cleavage, Fracture, Specific Gravity and any other special property.
3. Description of the following minerals with respect to their Chemical Composition,Physical properties and Uses :-
   (i) Oxides - Quartz, Corundum, Haematite, Magnetite, Chromite, Bauxite
   (ii) Carbon - Graphite
   (iii) Carbonates - Calcite, Magnesite
   (iv) Silicates - Orthoclase, Microcline, Plagioclase, Biotite, Muscovite, Olivine, Topaz,Talc, Garnet, Hornblende, Augite, (vi) Sulphates - Gypsum, Apatite
   (vii) Fluoride - Fluorite

(viii) UNIT - IV 12 periods

PALAEONTOLOGY Deleted

Books Recommended:

1. Bureau's Higher Secondary (+2) Geology, Part - I

Published by Odisha State Bureau of Text Book preparation and production, Bhubaneswar. ,

PAPER - 1

PRACTICAL

Full Marks - 30

Time - 3 hours

To be covered in the first year and to be conducted at the end of +2 1**st** year :

1. Crystallography: - 12 marks

Study of Crystal models of Normal classes of Isometric, Tetragonal, Hexagonal and Orthorhombic

system with respect to Axial relationship, Symmetry elements and Forms present

2. Mineralogy:- 2 marks

Study of physical properties of Rock forming and Ore forming Minerals listed in Theory

3. deleted

Laboratory records and Viva Voce : 3+3 : 6 marks

GEOLOGY

+2 2nd Year

The students reading Geology subject are required to undertake a field training programme for getting an idea about the field aspect of the subject with a minimum period of three days. The Geological Field Training will be conducted by the respective Colleges and the students will be allowed to appear the Practical examination only after the completition of the field training programme, with their own expenses.

THEORY PAPER - II

Time - 3 hours

Full Marks - 70 marks

Short questions will be set for 50 marks (fifty marks) and rest 20 (twenty marks) will be of long type. At least two long questions of 10 marks each should be set covering all units of the

syllabus. There should be uniform distribution of marks for every unit for short questions also.

PRACTICAL PAPER - II

Time - 3 hours

Full Marks - 30 marks

1. Petrology
2. Structural Geology
3. Economic Geology
5. Viva Voce
6. Laboratory Record

The pass marks for theory paper is 30% and pass mark for practical paper is 40%. The candidate has to secure the pass marks individually in each paper to be successful in Higher

Secondary Examination.

Detailed Syllabus
GEOLOGY
(+2 II Year)

THEORY PAPER

Full Marks - 70
Time - 3hours

UNIT -1 **Marks - 20** **14 periods**

PETROLOGY

A. Igneous Petrology

1. Definition and classification of Rocks.
2. Classification of Igneous rocks based on depth of Cooling.
3. Forms of Igneous Rock -
   (a) Concordant, - Sill, Laccolth, Lopolith, Phacolith
   (b) Discordant - Dyke, Batholith.
4. Texture and Structure of Igneous rocks.
5. Description of the following rocks with respect to the Textural, & Mineralogical Composition.
   (a) Intrusive Rocks - Granite, Pegmatite, , Gabbro, Dolerite, Peridotite.
   (b) Extrusive Rocks - Basalt

B. Sedimentary Petrology

1. Brief idea about mode of formation of Sedimentary Rocks.
2. Texture and Structure of Sedimentary Rocks. Description of the following Sedimentary Rocks -Conglomerate, Breccia, Sandstone, Shale, Limestone.

C. Metamorphic Petrology

1. Definition, Agents & kinds of metamorphism.
2. Metamorphic Texture and Structure.
3. Description of the following Metamorphic Rocks -Gneiss, Schist, Quartzite, Marble,

UNIT - II **Marks-20** **12 periods**

ECONOMIC GEOLOGY

1. Definition of Ore, gangue, Tenor and grade of Ore
2. Elementary idea about the process of formation of mineral deposits with special reference to magmatic Concentration and Hydrothermal processes.
3. (b) Mineralogy, Mode of occurrence, Uses and Indian distribution of the following ores: (i) Iron Ore(ii) Manganese Ore iv) Aluminium (v) Chromium

APPLIED GEOLOGY:

Deleted

UNIT - III **Marks - 25** **14 periods**

STRATIGRAPHY and STRUCTURAL GEOLOGY

A. Stratigraphy

1. Stratigraphic Units and Principles of Stratigraphy
2. Standard Stratigraphic Time Scale
3. Pre Cambrian of Singhbhum and Odisha
5. Type areas of Cuddapah and Vindhyan Super Group

B. Structural Geology:

1. Attitude of Beds: Dip and Strike
2. Fold : Antiform, Synform, Anticline, Syncline, Symmetrical, Isoclinal and Recumbent Fold.
3. Fault: Normal fault, Reverse fault, Horst & Graben.
4. Unconformity and its types.

Books Recommended:

1. Bureau's Higher Secondary (+2) Geology, Part - II

Published by Odisha State Bureau of Text Book Preparation and Production, Bhubaneswar.

PRACTICAL Full-Marks - 30

Time - 3 hours

1**.** Petrology - 10 marks

2. Structural Geology - 6marks

3. Economic Geology (Ore Minerals) - 5 marks

5. Viva Voce - 3 marks

6. Laboratory Records - 3 marks

Detailed Syllabus for Practical:

1. Petrology

Megascopic Identification of Rocks as mentioned in Theory.

2. Structural Geology

Study of Geological Maps and drawing of sections of Simple Maps.

3. Economic Geology

Megascopic Identification of the following Economic Minerals:- Haematite, Pyrite, Magnetite,

Pyrolusite, Psilomelane, Chalcopyrite, Bauxite, Chromite, Magnesite, Coal, Graphite.

5. Viva Voce

Oral questions to be answered by the students.

6. Laboratory records

The Laboratory Records are to be examined by the examiner at the time of Practical

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NB: Question Pattern Remain Unchanged

Revised Syllabus for session 2020-21

INFORMATION TECHNOLOGY

+2 1st Year SC/ARTS/COM

Unit-1

Introduction to computer system

A) Hardware concepts : [10 periods] ..... 10 marks

I) Computer organisation :

CPU, Memory (RAM & ROM & I /O), devices, communication bus, ports (serial parallel)

II) Input devices :

Keyboard, Mouse,Light pen, touch screen, graphic tablets, joystick, microphone, OCR, OMR, scanner, smart card reader, BCR, MICR, BIOMETRIC sensors, web camera.

III) Output devices :

Monitor/VDU, LED/LCD screen, television, printers (DMP, deskjet / inkjet/bubble jet printer, laser printer), plotter, speaker.

IV) Memory unit :

Memory, types of memory, RAM(SDAM, DRAM), ROM(PROM, EPROM, EEPROM),

B) Types of software :

I) System software : [10 periods] ..... 10 marks

Operating systems, need for operating system, major functions of operating system, OS for Main frame, PC/server, mobile services, language processors (assembler, interpreter & compiler)

II) Utility software :

Compression tools, disk defragmenter, anti virus.

III) Application software :

General purpose applicaton (word processor, spreadshet packages, presentation software, DBMS, IDE software), specific purpose application software (Inventory Management Software, Human Resource Management System (HRMS), Payroll systems, Financial Management System, Reservation System).

IV) Open source concepts : [7 periods] ..... 05 marks

Unit - 2 :

Introduction to programming : [45 periods] ..... 25 marks

I) Getting started with programming with IDE : [20 periods] ..... 11 marks

Introduction, rapid application development with ide, basic interface components (label, text field, text area, button, checkbox, radio button) devloping general application, getting familiar with java swing user interface components (frame, dialog, option pane, panal, scroll pane, label, text field, password field, text area, button, check box, radio button, combo box, list), basic components handling methods & properties (Set text (), gettext () Is Selected (), Set Selected ())

II) Programming fundamentals : [15 periods] ..... 10 marks

Data types, concept of data types, built in data types (byte, short, int, long, float, double, char, string, boolean), variables, declaring variables, naming a variable, assigning value to variables, integer object method (parse int), double object method (parse double, parse float), control structure, decision structure (if, if.... else, switch), looping structure (while, Do-While, for)

III)

Unit-3 : Relational database management system : [30 periods] ..... 20 marks

I) DBMS : [10 periods] ..... 10 marks

Introduction to data base concepts, Database, Relational database, Relation/ Table, Attribute/ Field, Tuple/Row, Data types, text (char, varchar), number (decimal, int/integer), date & time. Keys (candidate key, primary key, Alternate key, Foreign key),

II) Introduction to MYSQL : [13 periods] ..... 05 marks

(ANSI SQL 99 standard commands)

Classification of SQL commands, DML (Select, Insert, Update, Delete), DDL(Create, Drop, Alter), Creating & using a database (SQL Create command to create a database, Use command to select a database), creating a Table (Create command to create a table, DESC command to display a table structure, Insert command for inserting new rows), displaying table data (select command to select all the columns, selecting specific columns using arithmetic operators, operator precedence),

Unit -4 : IT APPLICATIONS : [7 periods] ..... 5 marks

I) E-GOVERNANCE : [4periods] ..... 3 marks

II) E-learning : [3 periods]..... 2 marks

Defination, Benefit to students (learners), Benefit to teachers (Training Management), e-Learning websides & its social impact.

PRACTICAL :

I) Problem solving using Java ..... 10 marks

II) SQL Queries ..... 05 marks

III) Pratical Records ..... 10 marks

[Productivity Tools, Simple problem using Java SQL Queries, IT Application]

IV) Viva Voce ..... 05 marks

Evaluation of practical Examination :

a) **Problem / Solving** using Java :

Student is required to solve programming problems based or all concept covered in the experiment to maintain a record of these in the practical file.

b) **SQL Queries** :

Students will be asked to write 5 SQL queries in MY SQL based on one or two table during the final examination.

c) Pratical Record File :

A practical record file should include the following :

i) At least 10 solution of simple problems using IDE based java.

ii) At least 3 IT application ..... problem - solving frame work.

iii) At least 15 SQL queries on any database.

d) Viva Voce :

Swing Control Methods & Properties :

Class :	Jbutton
Swing control :	JButton
Methods :	get Text (), set Text ()
Propeties :	Background, Enabled, Font, Foreground, Text, Label
Calss :	Jlabel,jLabal
Swing control :	JLabel

Methods :	get Text (), set Text ()
Propeties :	Background, Enabled, Font, Foreground, Text
Class :	Jtext Field
Swing control :	j Text Field, j Text
Methods :	get Text (), IsEditable (), set Text ()
Propeties :	Backgroud, Editable Enabled, Font, Foreground, Text
Class :	Jradio Button
Swing control :	J Radio Button, J Radio
Methods :	get Text(), set Text(), is Selected(), set Selected ()
Propeties :	Background, Button Group, Enabled, Font, Foreground, Label, Selected, Text
Class :	Jcheck Box
Swing control :	jCheck Box
Methods :	get Text(), set Text (), is Selected(), set Selected()
Propeties :	Button Group, Font, Foreground, Label, Selected, Text
Class :	Button Group
Swing control :	jButton Group
Methods :	
Propeties :	Add
Class :	JcomboBox
Swing control :	jCombpBox
Methods :	get Selected Item (), get Selected Index (), set Model ()
Propeties :	Backgroup, Button Group, Editable, Enabled, Font, Foreground, Model, SelectedIndex, SelectedItem, Text
Class :	Jlist
Swing control :	j List
Methods :	get Selected Value ()
Propeties :	Backgroup, Buttom Group, Editable, Enabled, Font, Foreground, Model, Selected Index, Selected Item, Text
Class :	Jtable
Swing control :	jTable
Methods:	addRow(), get Model ()
Propeties :	Model
Class :	Joption Pane
Swing control :	
Methods :	showMessage Dialog ()
Propeties :	
Class :	Default Table Model
Swing control :	get Row Count (), remove Row (), add Row ()
Methods :	
Propeties :	

Commonly used Methods :

Class	**Methods**
Integer	Parselnt (), to Double(), to String()
String	Concat (), length (), substring (), to Double (),

	to Lower Case(), to Upper Case (), trim ()
Double	parseDouble(), toString(), tolnt()
Math	pow(), round()

Database Connectivity Methods :

Class	**Methods**
Connection	create Statement(), close ()
Driver Manager	get Connection ()
Statement	execute Query()
Result Set	Next(), first(), last(), getString()
Exception	get Message()
System	Exit()

Information Technology
2nd Year Paper - II

UNIT-1 : Networking & Open Standards : [25 Periods] ..... [30 Marks]

i) Computer Networking : [08 Periods] ..... [10 Marks]

Networking - a brief overview, Network devices (Hub, Switch, Bridge, RouterRepeater, Gateway) & their functions, Type of Network (LAN, MAN, WAN, PAN) Network Topologies (Star, Ring, Bus, Tree),

ii) Internet & its Application : [12 Periods] ..... [10 Marks]

Internet - an Overview, Internet Backbone, Internet Access (Dial-up, direct,
Broadband connection), Role of ISP, Internet Protocols (TCP/IP, HTTP, FTP, TELNET, WAIS, GOPHER), Internet Addressing (IP Address, Domain names), MAC (Media Access Control), URL, E-mail, Address, Internet Application [www, websites & web pages, Email, SMS, voice mail, chatting, IRC, Video conferencing, web browsers, search Engine] wireless/ mobile communication [GSM, CDMA, WLL, 3G, 4G]

iii) Network security on internet : [05 Periods] ..... [10 Marks]

Threats & prevention from virus, Use of cookies,

UNIT - 2 : Programming : [Reviews of 1st yr] : [40 periods] ..... [16 Marks]

i) Programming fundamentals : [28 periods] ..... [10 Marks]

Basic concept of Access specifier for class member [data member & methods], Basic concept of inheritance, Commonly used libraries ..... staring class & methods [tasting(), concat (), length(), to lower case (), to upper case (), trim (), substring ()] & math class & methods [pow (), round ()],

ii) HTML based web page covering basic tag : [12 periods] ... [6 marks]

HTML, DHTML, TITLE, BODY, H1 ..... H6, Paragraph (P) Line break (BR), Section separator (HR), font, table, list (UL, OL), FORM,

UNIT - 3 : Relational Database Management System : [30 Periods] [14 Marks]

i) Database fundamentals : [20 periods] ..... [8 Marks]

Concept of Database Transaction, committing and revoking a transaction using COMMIT & ROLLBACK, Grouping Records, GROUP BY, Group function [MAX (), MIN (), AVG(), SUM(), COUNT()] Using COUNT (*), DIDINCT clause with COUNT, group function & NULL value,

ii) Introduction to MYSQL : [10 periods] ..... [6 Marks]

Working with NULL value, ORDER BY CLAUSE [sorting in ascending / desceding order, sorting by column alias name, sorting or multiple column], manipulating data of a table / relation [update command to change exiting data of a table, delete command for removing rows from a table], restructuring a table [ALTER TABLE for adding new columns and deleting columns], string function [ASCII(), CHAR(), CONCAT(), INSTR(), LCASE(), UCASE (), LENGTH (), LTRIM(), MID (), RIGHT (), RTRIM (), TRIM (), SUBSTR ()], Mathematical functions [POWER (), ROUND(), TRUNCATE()], Date & time functions [CURDATE(), DATE(), MONTH(), DAYOFMONTH(), DAYOFWEEK(), DAYOFYEAR(), NOW(), SYSDATE()].

UNIT - 4 : IT Applications : [10 periods ..... [10 Marks]

i) E-business

Definition, E-commerce & its type with benefits, E-business websites & their salient features & Social impacts, E business challengers.

PRACTICALS :

1. Problem solving using java ..... [10 Marks]

2. SQL Queries .....[05 Marks]
3. Practical records .....[05 Marks]
    I) Simple problems using IDE Java
    II) SQL Queries
    III) Web-page creation by HTML
    IV) IT Application
4. Project work ..... [05 Marks]
5. Viva Voce ..... [05 Marks]

Evaluation of practical Examination :

1. Students will be given a problem to be solved using java during final practical examination based on all concepts covered in theory.
2. SQL Queries :

Students will be asked to write 5 SQL queries in MY SQL based on one or two tables during final practical examination.

3. Practical record :

A practical record should include the following :

a) At least 12 solution of simple problem using IDE based java.
b) Solution of at least 2 simple problem incorporating java application & database connectivity.
c) At least 24 SQL queries on one & / or two tables.
d) At least two web pages creating using HTML.

4. Project file :

Students in group of 2/3 are required to work collaboratively to develop a project using programming & database skills. This project should be an application in any one of the domain..... .

a) E - governance
b) E - business
c) E - learning

With GUI front - end & corresponding database at the back - end.

5. Viva Voce

Question paper design (For Theory)

+2 1st yr (Sc/Arts/Commerce)

A. Very short Question : (1 Marks)
i) Introduction to computer systems (4 question x 1 marks) ..... 4 mark
ii) Types of software (2 question x 1 marks) ..... 2 marks
iii) Getting started with programming using IDE (1 question x 1 marks)..... 1 marks
iv) Open source concept (1 question x 1 marks) ..... 1 marks
v) Introduction to MY SQL (3 question x 1 marks) .....3 marks
vi) IT Application (1 question x 1 marks) ..... 1 marks

B. Short question : (2 mark each)
i) Introduction to computer system (1 question x 2 marks) ..... 2 marks
ii) Type of software (2 question x 2 marks) ..... 4 marks
iii) Programming using IDE (2 question x 2 marks) ..... 4 marks
iv) Introduction to MY SQL (1 question x 2 marks) ..... 2 marks
v) DBMS - (1 question x 2 marks) ..... 2 marks
vi) IT Application (2 question x 2 marks) ..... 4 marks

C. Short question : (4 marks each)
i) Introduction to computer system (1 question x 4 marks) ..... 4 marks

ii) Type of software (1 question x 4 marks) ..... 4 marks
iii) Open source concept (1 question x 4 marks) ..... 4 marks
iv) DBMS (2 question x 4 marks) ..... 8 marks
v) Programming fundamentals (1 question x 4 marks) ..... 4 marks
vi) Programming guideline (1 question x 4 marks) ..... 4 marks
D. Long question : (6 marks each)
i) Programming fundamentals (1 question x 6 marks) ..... 6 marks
ii) Getting started with programming with IDE (1 question x 6 marks) .... 6 marks

+2 2nd Yr Science/Arts/Commerce

A. Very short question : (1 marks each)
i) Computer network (2 question x 1 marks) ..... 2 marks
ii) Internet & its application (2 question x 1 marks) ..... 2 marks
iii) Network security (2 question x 1 marks) ..... 2 marks
iv) Database (2 question x 1 marks) ..... 2 marks
v) Introduction to MYSQL (2 question x 1 marks) ..... 2 marks
vi) IT Application (2 question x 1 marks) ..... 2 marks
B. Short question : (2 Marks each)
i) Computer network (2 question x 2 marks) ..... 4 marks
ii) Internet & its application (1 question x 2 marks) ..... 2 marks
iii) Network security (2 question x 2 marks) ..... 4 marks
iv) HTML base web pages (1 question x 2 marks) ..... 2 marks
v) Database (1 question x 2 marks) ..... 2 marks
vi) IT Application (2 question x 2 marks) ..... 4 marks
C. Short question : (4 Marks each)
i) Computer network (1 question x 4 marks) ..... 4 marks
ii) Network security (1 question x 4 marks) ..... 4 marks
iii) Programming Fundamental (1 question x 4 marks) ..... 4 marks
iv) HTML base web pages (1 question x 4 marks) ..... 4 marks
v) Database (1 question x 4 marks) ..... 4 marks
vi) Introduction to MY SQL (1 question x 4 marks) ..... 4 marks
vii) IT Application (1 question x 4 marks) ..... 4 marks
D. Long question : (6 marks each)
i) Internet & its application (1 question x 6 marks) ..... 6 marks
ii) Programming Fundamentals (1 question x 6 marks) ..... 6 marks

Books Recommended:

1. Bureau's Higher Secondary (+2) INFORMATION TECHNOLOGY, Part-I & II, Published by Odisha State Bureau of Text Book Preparation and Production, Bhubaneswar.

Modified Syllabus 2020-21

MATHEMATICS (+2 2nd year)
Course Structure

UNIT - I : Relations and Functions

1. Relations and Functions

Types of relations; reflexive, symmetric, transitive and equivalence relations. One to one and onto functions, composite functions, inverse of function. Binary operations.

2. Inverse Trigonometric Functions

Definition, range, domain, principle value branch.

3. Linear Programming

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

UNIT - II : Algebra

1. Matrices

Concept, notation, order, equality, types of matrices, zero and identity matrix, transpose of a matrix, symmetric and skew symmetric matrices. Operation on matrices; Addition and multiplication and multiplication with a scalar. Simple properties of addition, multiplication and scalar multiplication. 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

2. Determinants

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. solving system of linear equations in two or three variables (having unique solution) using inverse of a matrix.

UNIT-III : Differential Calculus

1. Continuity and Differentiability

Continuity and differentiability, derivative of composite functions, chain rule, derivatives 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 derivativesNo problems on Mean Value Theorems.

2. Applications of Derivatives

Applications of derivatives : , increasing and decreasing functions, tangents and normals, , maxima and minima (first derivative test motivate 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-IV Integral Calculus

1. Integrals

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.

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

$$\int \frac{dx}{ax^2 + bx + c}, \int \frac{px + q}{ax^2 + bx + c} dx,$$

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

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

2. Applications of the Integrals

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).

3. Differential Equations.

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 :

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

UNIT - V : Vectors and Three-Dimensional Geometry

1. Vectors

Vectors and scalars, magnitude and direction of a vector. Direction cosines and direction ratios of a vector. Types of vectors (equal, unit, zero, parallel and collinear vectors), position vector of a point, negative of a vector, components of a vector, 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 .

2. Three - dimensional Geometry

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. Distance of a point from a plane.

Books Recommended:

Bureau's Higher Secondary (+2) Elements of Mathematics, Part-II, Published by Odisha State Bureau of Text Book Preparation and Production, Bhubaneswar.

MATHEMATICS
(+2 First Year)

UNIT - I : Sets and Functions

1. Sets

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

2. Relations & Functions

Ordered pairs, Cartesian product of sets. Number of elements in the Cartesian product of two finite sets. Cartesian product of the sets of real (up to R × R). Definition of relation, pictorial diagrams, domain, co-domain and range of a relation. Function as a special kind of relation from one set to another. Pictorial representation of a function, domain co-domain and range of a function. Real valued functions, domain and range of these functions: Constant, identity, polynomial, rational, modulus, signum, exponential, logarithmic and greatest integer function, with their graphs.

3. Trigonometric Functions

Positive and negative angles. Measuring angles in radians and in degrees and conversion of one into other. Definition of trigonometric functions with the help of unit circle. Truth of $\sin^2 x + \cos^2 x = 1$, for all x. Signs of trigonometric functions. Domain and range of trigonometric functions and their graphs. Expressing $\sin(x \pm y)$ and $\cos(x \pm y)$ in terms of $\sin x$, $\sin y$, $\cos x$ & $\cos y$ and their simple application. Deducing identities like the following :

$$\tan(x \pm y) = \frac{\tan x \pm \tan y}{1 \mp \tan x \tan y}, \quad \cot(x \pm y) = \frac{\cot x \cot y \mp 1}{\cot y \pm \cot x}$$

$$\sin x + \sin y = 2 \sin \frac{x+y}{2} \cos \frac{x-y}{2}, \quad \cos x + \cos y = 2 \cos \frac{x+y}{2} \cos \frac{x-y}{2},$$

$$\sin x - \sin y = 2 \cos \frac{x+y}{2} \sin \frac{x-y}{2}, \quad \cos x - \cos y = -2 \sin \frac{x+y}{2} \sin \frac{x-y}{2},$$

Identities related to sin 2x, cos 2x, tan 2x, sin 3x, cos 3x and tan 3x. Trigonometric equations Principal solution.

UNIT-II : Algebra

1. Principle of Mathematical Induction

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

2. Complex Numbers and Quadratic Equations

Need for complex numbers, especially $\sqrt{-1}$, to be motivated by inability to solve some of the quadratic equations; Algebraic properties of complex numbers. Argand plane. Statement of Fundamental Theorem of Algebra, solution of quadratic equations in the complex system. cube roots of unity and its properties.

3. Linear Inequalities

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

4. Permutations and Combinations

Fundamental principle of counting, factorial n. (n!), Permutations and combinations, , simple applications.

5. Binomial Theorem

History, statement No problems on Binomial Theorem

6. Sequence and Series

Sequence and Series, Arithmetic Progression (A.P.). Arithmetic Mean (A.M.) Geometric Progression (G.P.), general term of a G.P, sum of n terms of a G.P., Arithmetic and Geometric series, infinite G.P. and its sum, geometric mean (G.M.), Harmonic (mean) relation between A.M., GM. and H.M.,

UNIT - III : Co-ordinate Geometry

1. Straight Lines

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

2. Conic Sections

Sections of a cone : circles, ellipse, parabola, hyperbola; Standard equations and simple properties of Circle, parabola, ellipse and hyperbola.

3. Introduction to Three-dimensional Geometry

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

UNIT-IV: Calculus

1. Limits and Derivatives

Derivative introduced as rate of change both as that of distance function and geometrically. Intuitive idea of limit. Limits of polynomials and rational functions,

trigonometric, exponential and logarithmic functions. Definition of derivative, relate it to slope of tangent of a curve, derivative of sum, difference, product and quotient of functions. The derivative of polynomial and trigonometric functions.

UNIT-V : Mathematical Reasoning

1. Mathematical Reasoning

Mathematically acceptable statements. Connecting words/phrases-consolidating the understanding of "if and only if (necessary and sufficient) condition," "implies", "and/ or", "implied by", "and", "or", "there exists" and their use through variety of examples related to real life and Mathematics.

UNIT-VI : Statistics and Probability

1. Statistics

Measures of dispersion; Range, mean deviation, variance and standard deviation of ungrouped/ grouped data.

Random experiments; outcomes, sample spaces (set representation). Events; occurrence of events, 'not', 'and' and 'or' events, exhaustive events, mutually exclusive events, Probability of an event. Probability of 'not', 'and' 'or' events.

Books Recommended:

Bureau's Higher Secondary (+2) Elements of Mathematics, Part-I, Published by Odisha State Bureau of Text Book Preparation and Production, Bhubaneswar.

୨୦୨୦-୨୧ ଶିକ୍ଷାବର୍ଷ ଉପଲକ୍ଷେ ସଙ୍କୁଚିତ ପାଠ୍ୟଖସଡ଼ା

MIL (ODIA)

ଆଧୁନିକ ଭାରତୀୟ ଭାଷା (ବାଧତାମୂଳକ) ଓଡ଼ିଆ

କଳା / ବିଜ୍ଞାନ / ବାଣିଜ୍ୟ ଶିକ୍ଷାସ୍ରୋତ ନିମନ୍ତେ

ପ୍ରଥମ ବର୍ଷ (ଏକାଦଶ ଶ୍ରେଣୀ)

ପୂର୍ଣ୍ଣସଂଖ୍ୟା – ୧୦୦ ସମୟ – ୩ ଘଣ୍ଟା

ପିରିଅଡ଼ ସଂଖ୍ୟା – ସାପ୍ତାହିକ – ୪ (ବାର୍ଷିକ ୫୬)

ପ୍ରଥମ ଏକକ – ଗଦ୍ୟ (୧୧ ପିରିଅଡ଼) **୨୦ ନମ୍ବର**

୧. 'ଶରଶୁପଦର' – ଗୋପୀନାଥ ମହାନ୍ତି

୨. ଝେଲମ୍ ନଦୀରେ ସଂଧ୍ୟା – କୁଂଜବିହାରୀ ଦାଶ

୩. ମଧୁବାବୁ – ଚିନ୍ତାମଣି ଆଚାର୍ଯ୍ୟ

- ଏହି ଏକକରୁ ୫ଟି ୧ ନମ୍ବର ବିଶିଷ୍ଟ ପ୍ରଶ୍ନ ପଡ଼ିବ । ପ୍ରତ୍ୟେକ ପ୍ରଶ୍ନ ପାଇଁ ୪ଟି ଲେଖାଏଁ ସମ୍ଭାବ୍ୟ ଉତ୍ତର ଦିଆଯିବ । ସେଥିମଧ୍ୟରୁ ପରୀକ୍ଷାର୍ଥୀ କେବଳ ଠିକ୍ ଉତ୍ତରଟି ବାଛି ଲେଖିବେ ।

  ଏହାର ମୂଲ୍ୟ ୧ × ୫ = ୫ ନମ୍ବର ।

- ୪ଟି ୧ ନମ୍ବର ବିଶିଷ୍ଟ ପ୍ରଶ୍ନ ପଡ଼ିବ । ସେଥିରୁ ୩ଟିର ଉତ୍ତର ଗୋଟିଏ ବାକ୍ୟରେ ଦେବାକୁ ହେବ ।

  ଏହାର ମୂଲ୍ୟ ୧ × ୩ = ୩ ନମ୍ବର ।

- ୩ଟି ୨ ନମ୍ବର ବିଶିଷ୍ଟ ପ୍ରଶ୍ନ ପଡ଼ିବ । ସେଥିରୁ ୨ଟିର ଉତ୍ତର ୨ଟି ବାକ୍ୟରେ ଦେବାକୁ ହେବ ।

  ଏହାର ମୂଲ୍ୟ ୨ × ୨ = ୪ ନମ୍ବର ।

- ୨ଟି ୩ ନମ୍ବର ବିଶିଷ୍ଟ ପ୍ରଶ୍ନ ପଡ଼ିବ । ସେଥିରୁ ୧ଟିର ଉତ୍ତର ୩୦ଟି ଶବ୍ଦ ମଧ୍ୟରେ ଦେବାକୁ ହେବ ।

  ଏହାର ମୂଲ୍ୟ ୩ × ୧ = ୩ ନମ୍ବର ।

- ୨ଟି ଦୀର୍ଘ ଉତ୍ତରମୂଳକ ପ୍ରଶ୍ନ ପଡ଼ିବ । ସେଥିରୁ ୧ଟିର ଉତ୍ତର ୧୫୦ଟି ଶବ୍ଦ ଦେବାକୁ ହେବ ।
  ଏହାର ମୂଲ୍ୟ ୫ ନମ୍ବର ।

ଦ୍ୱିତୀୟ ଏକକ - ପଦ୍ୟ (୧୧ ପିରିଅଡ଼) **୨୦ ନମ୍ବର**

୧. ସାହାଡ଼ା ବୃକ୍ଷ – ସାରଳା ଦାସ

୨. ଶାପ ମୋଚନ - ଜଗନ୍ନାଥ ଦାସ

୩. ମିତ୍ରତା – ଉପେନ୍ଦ୍ର ଭଞ୍ଜ

- ଏହି ଏକକରୁ ୫ଟି ୧ ନମ୍ବର ବିଶିଷ୍ଟ ପ୍ରଶ୍ନ ପଡ଼ିବ । ପ୍ରତ୍ୟେକ ପ୍ରଶ୍ନ ପାଇଁ ୪ଟି ଲେଖାଏଁ ସମ୍ଭାବ୍ୟ ଉତ୍ତର ଦିଆଯିବ । ସେଥିମଧ୍ୟରୁ ପରୀକ୍ଷାର୍ଥୀ କେବଳ ଠିକ୍ ଉତ୍ତରଟି ବାଛି ଲେଖିବେ ।

  ଏହାର ମୂଲ୍ୟ ୧ × ୫ = ୫ ନମ୍ବର ।

- ୪ଟି ୧ ନମ୍ବର ବିଶିଷ୍ଟ ପ୍ରଶ୍ନ ପଡ଼ିବ । ସେଥିରୁ ୩ଟି ଉତ୍ତର ଗୋଟିଏ ବାକ୍ୟରେ ଦେବାକୁ ହେବ ।

  ଏହାର ମୂଲ୍ୟ ୧ × ୩ = ୩ ନମ୍ବର ।

- ୩ଟି ୨ ନମ୍ବର ବିଶିଷ୍ଟ ପ୍ରଶ୍ନ ପଡ଼ିବ । ସେଥିରୁ ୨ଟିର ଉତ୍ତର ୨ଟି ବାକ୍ୟରେ ଦେବାକୁ ହେବ ।
  ଏହାର ମୂଲ୍ୟ ୨ × ୨ = ୪ ନମ୍ବର ।
- ୨ଟି ୩ ନମ୍ବର ବିଶିଷ୍ଟ ପ୍ରଶ୍ନ ପଡ଼ିବ । ସେଥିରୁ ୧ଟିର ଉତ୍ତର ୩୦ଟି ଶବ୍ଦ ମଧ୍ୟରେ ଦେବାକୁ ହେବ ।
  ଏହାର ମୂଲ୍ୟ ୩ × ୧ = ୩ ନମ୍ବର ।
- ୨ଟି ଦୀର୍ଘ ଉତ୍ତରମୂଳକ ପ୍ରଶ୍ନ ପଡ଼ିବ । ସେଥିରୁ ୧ଟିର ଉତ୍ତର ୧୫୦ଟି ଶବ୍ଦ ଦେବାକୁ ହେବ ।
  ଏହାର ମୂଲ୍ୟ ୫ ନମ୍ବର ।

ତୃତୀୟ ଏକକ – ଏକାଙ୍କିକା (୧୧ ପିରିଅଡ଼) **୨୦ ନମ୍ବର**

୧. ଅତ୍ୟାଚାରିତ - ପ୍ରାଣବନ୍ଧୁ କର

୨. ଭାଲୁ ଉପଦ୍ରବ – ବିଜୟ ମିଶ୍ର

- ଏହି ଏକକରୁ ୫ଟି ୧ ନମ୍ବର ବିଶିଷ୍ଟ ପ୍ରଶ୍ନ ପଡ଼ିବ । ପ୍ରତ୍ୟେକ ପ୍ରଶ୍ନ ପାଇଁ ୪ଟି ଲେଖାଏଁ ସମ୍ଭାବ୍ୟ ଉତ୍ତର ଦିଆଯିବ । ସେଥିମଧ୍ୟରୁ ପରୀକ୍ଷାର୍ଥୀ କେବଳ ଠିକ୍ ଉତ୍ତରଟି ବାଛି ଲେଖିବେ ।
  ଏହାର ମୂଲ୍ୟ ୧ × ୫ = ୫ ନମ୍ବର ।
- ୪ଟି ୧ ନମ୍ବର ବିଶିଷ୍ଟ ପ୍ରଶ୍ନ ପଡ଼ିବ । ସେଥିରୁ ୩ଟି ଉତ୍ତର ଗୋଟିଏ ବାକ୍ୟରେ ଦେବାକୁ ହେବ ।
  ଏହାର ମୂଲ୍ୟ ୧ × ୩ = ୩ ନମ୍ବର ।
- ୩ଟି ୨ ନମ୍ବର ବିଶିଷ୍ଟ ପ୍ରଶ୍ନ ପଡ଼ିବ । ସେଥିରୁ ୨ଟିର ଉତ୍ତର ୨ଟି ବାକ୍ୟରେ ଦେବାକୁ ହେବ ।
  ଏହାର ମୂଲ୍ୟ ୨ × ୨ = ୪ ନମ୍ବର ।
- ୨ଟି ୩ ନମ୍ବର ବିଶିଷ୍ଟ ପ୍ରଶ୍ନ ପଡ଼ିବ । ସେଥିରୁ ୧ଟିର ଉତ୍ତର ୩୦ଟି ଶବ୍ଦ ମଧ୍ୟରେ ଦେବାକୁ ହେବ ।
  ଏହାର ମୂଲ୍ୟ ୩ × ୧ = ୩ ନମ୍ବର ।
- ୨ଟି ଦୀର୍ଘ ଉତ୍ତରମୂଳକ ପ୍ରଶ୍ନ ପଡ଼ିବ । ସେଥିରୁ ୧ଟିର ଉତ୍ତର ୧୫୦ଟି ଶବ୍ଦ ଦେବାକୁ ହେବ ।
  ଏହାର ମୂଲ୍ୟ ୫ ନମ୍ବର ।

ଚତୁର୍ଥ ଏକକ – ବୋଧଜ୍ଞାନ ପରୀକ୍ଷଣ (୧୧ ପିରିଅଡ଼) **୨୦ ନମ୍ବର**

ଅବବୋଧ ପରୀକ୍ଷଣ (କ) ଗଦ୍ୟାଂଶ (ଖ) ପଦ୍ୟାଂଶ

(କ) ଅବବୋଧ ପରୀକ୍ଷଣ ନିମନ୍ତେ ଏକ ଗଦ୍ୟ ଅନୁଚ୍ଛେଦ ଦିଆଯିବ ।
ସେଥିରୁ ପ୍ରଥମ ୪ଟି ୧ ନମ୍ବର ବିଶିଷ୍ଟ ପ୍ରଶ୍ନ ପଡ଼ିବ । ପ୍ରତ୍ୟେକ ପ୍ରଶ୍ନର ଉତ୍ତର ଗୋଟିଏ ବାକ୍ୟରେ ଦେବାକୁ ହେବ ।

ଏହାର ମୂଲ୍ୟ ୧ × ୪ = ୪ ନମ୍ବର ।
ପୁନଶ୍ଚ ସେଥିରେ ୩ଟି ବିଶିଷ୍ଟ ପ୍ରଶ୍ନ ପଡ଼ିବ । ପ୍ରତ୍ୟେକ ପ୍ରଶ୍ନର ଉତ୍ତର ୨ଟି ବାକ୍ୟରେ ଦେବାକୁ ହେବ ।

ଏହାର ମୂଲ୍ୟ ୨ × ୩ = ୬ ନମ୍ବର ।

(ଖ) ଗୋଟିଏ ଅଜ୍ଞାତ କବିତା ଦିଆଯିବ । ପ୍ରଥମ ୪ଟି ୧ ନମ୍ବର ବିଶିଷ୍ଟ ପ୍ରଶ୍ନ ପଡ଼ିବ । ପ୍ରତ୍ୟେକ ପ୍ରଶ୍ନର ଉତ୍ତର ଗୋଟିଏ ବାକ୍ୟରେ ଦେବାକୁ ହେବ ।

ଏହାର ମୂଲ୍ୟ ୧ × ୪ = ୪ ନମ୍ବର ।

ପୁନଶ୍ଚ ସେଥିରେ ୩ଟି ବିଶିଷ୍ଟ ପ୍ରଶ୍ନ ପଡ଼ିବ । ପ୍ରତ୍ୟେକ ପ୍ରଶ୍ନର ଉତ୍ତର ୨ଟି ବାକ୍ୟରେ ଦେବାକୁ ହେବ ।

ଏହାର ମୂଲ୍ୟ ୨ × ୩ = ୬ ନମ୍ବର ।

ପଞ୍ଚମ ଏକକ - ପ୍ରବନ୍ଧ ଓ ବ୍ୟାକରଣ (୧୨ ପିରିଅଡ଼) **୨୦ ନମ୍ବର**

(କ) ପ୍ରବନ୍ଧ

(ଖ) ବ୍ୟାକରଣ

ପଦ ପ୍ରକରଣ – ବିଶେଷ୍ୟ, ବିଶେଷଣ, ସର୍ବନାମ, ଅବ୍ୟୟ, କ୍ରିୟା

- ପ୍ରବନ୍ଧରୁ ତିନୋଟି ପ୍ରଶ୍ନ ଦିଆଯିବ । ସେଥିରୁ ଯେକୌଣସି ଗୋଟିଏ ପ୍ରଶ୍ନର ଉତ୍ତର ୧୫୦ରୁ ୨୦୦ ଶବ୍ଦ ମଧ୍ୟରେ ଦେବାକୁ ହେବ ।

  ଏହାର ମୂଲ୍ୟ ୫ × ୧ = ୫ ନମ୍ବର ।

- ପଦ ପ୍ରକରଣ - ବିଶେଷ୍ୟ, ବିଶେଷଣ, ସର୍ବନାମ, ଅବ୍ୟୟ, କ୍ରିୟାରୁ ୫ଟି ଲେଖାଏଁ ପ୍ରଶ୍ନ ପଡ଼ିବ । ସେଥିରୁ ୩ଟି ଲେଖାଏଁ ପ୍ରଶ୍ନର ଉତ୍ତର ଦେବାକୁ ହେବ ।

  ଏହାର ମୂଲ୍ୟ ୧×୩ = ୩, ୧×୩ = ୩, ୧×୩= ୩, ୧×୩= ୩, ୧×୩= ୩ = ୧୫ ନମ୍ବର ।

ପାଠ୍ୟଗ୍ରନ୍ଥ – ସାହିତ୍ୟ ଜ୍ୟୋତି, ଏକାଦଶ ଶ୍ରେଣୀ

ଓଡ଼ିଶା ରାଜ୍ୟ ପାଠ୍ୟ ପୁସ୍ତକ ପ୍ରଣୟନ ଓ ପ୍ରକାଶନ ସଂସ୍ଥା, ଭୁବନେଶ୍ୱର

♦♦♦

୨୦୨୦-୨୧ ଶିକ୍ଷାବର୍ଷ ଉପଲକ୍ଷେ ସଙ୍କୁଚିତ ପାଠ୍ୟଖସଡ଼ା

MIL (ODIA)

ଆଧୁନିକ ଭାରତୀୟ ଭାଷା (ବାଧତାମୂଳକ) ଓଡ଼ିଆ

କଳା / ବିଜ୍ଞାନ / ବାଣିଜ୍ୟ ଶିକ୍ଷାସ୍ରୋତ ନିମନ୍ତେ

ଦ୍ୱିତୀୟ ବର୍ଷ (ଦ୍ୱାଦଶ ଶ୍ରେଣୀ)

ପୂର୍ଣ୍ଣସଂଖ୍ୟା – ୧୦୦ ସମୟ – ୩ ଘଣ୍ଟା

ପିରିଅଡ଼ ସଂଖ୍ୟା – ସାପ୍ତାହିକ – ୪ (ବାର୍ଷିକ ୫୬)

ପ୍ରଥମ ଏକକ (Unit – I) – ଗଦ୍ୟ (୧୧ ପିରିଅଡ଼) ୨୦ ନମ୍ବର

୧. ସ୍ୱାଧୀନ ଦେଶର ଶିକ୍ଷା ଚିନ୍ତା – ଗୋଲୋକ ବିହାରୀ ଧଳ

୨. ପୁଷ୍ପପୁରରେ ବର୍ଷାବରଣ – କୃଷ୍ଣଚନ୍ଦ୍ର ପାଣିଗ୍ରାହୀ

୩. ତିନି ତୁଣ୍ଡରେ – ଭୁବନେଶ୍ୱର ବେହେରା

- ଏହି ଏକକରୁ ୫ଟି ୧ ନମ୍ବର ବିଶିଷ୍ଟ ପ୍ରଶ୍ନ ପଡ଼ିବ । ପ୍ରତ୍ୟେକ ପ୍ରଶ୍ନ ପାଇଁ ୪ଟି ଲେଖାଏଁ ସମ୍ଭାବ୍ୟ ଉତ୍ତର ଦିଆଯିବ । ସେଥିମଧ୍ୟରୁ ପରୀକ୍ଷାର୍ଥୀ କେବଳ ଠିକ୍ ଉତ୍ତରଟି ବାଛି ଲେଖିବେ ।

  ଏହାର ମୂଲ୍ୟ ୧ × ୫ = ୫ ନମ୍ବର ।

- ୪ଟି ୧ ନମ୍ବର ବିଶିଷ୍ଟ ପ୍ରଶ୍ନ ପଡ଼ିବ । ସେଥିରୁ ୩ଟିର ଉତ୍ତର ଗୋଟିଏ ବାକ୍ୟରେ ଦେବାକୁ ହେବ ।

  ଏହାର ମୂଲ୍ୟ ୧ × ୩ = ୩ ନମ୍ବର ।

- ୩ଟି ୨ ନମ୍ବର ବିଶିଷ୍ଟ ପ୍ରଶ୍ନ ପଡ଼ିବ । ସେଥିରୁ ୨ଟିର ଉତ୍ତର ୨ଟି ବାକ୍ୟରେ ଦେବାକୁ ହେବ ।

  ଏହାର ମୂଲ୍ୟ ୨ × ୨ = ୪ ନମ୍ବର ।

- ୨ଟି ୩ ନମ୍ବର ବିଶିଷ୍ଟ ପ୍ରଶ୍ନ ପଡ଼ିବ । ସେଥିରୁ ୧ଟିର ଉତ୍ତର ୩୦ଟି ଶବ୍ଦ ମଧ୍ୟରେ ଦେବାକୁ ହେବ ।

  ଏହାର ମୂଲ୍ୟ ୩ × ୧ = ୩ ନମ୍ବର ।

- ୨ଟି ଦୀର୍ଘ ଉତ୍ତରମୂଳକ ପ୍ରଶ୍ନ ପଡ଼ିବ । ସେଥିରୁ ୧ଟିର ଉତ୍ତର ୧୫୦ଟି ଶବ୍ଦ ଦେବାକୁ ହେବ ।
  ଏହାର ମୂଲ୍ୟ ୫ ନମ୍ବର ।

ଦ୍ୱିତୀୟ ଏକକ (Unit – II) - ପଦ୍ୟ (୧୧ ପିରିଅଡ଼) ୨୦ ନମ୍ବର

୧. ବଡ଼ପଣ – ରାଧାନାଥ ରାୟ

୨. ତପସ୍ୱିନୀର ପତ୍ର – ଗଙ୍ଗାଧର ମେହେର

୩. ବାର୍ତ୍ତା – ସଚ୍ଚିଦାନନ୍ଦ ରାଉତରାୟ

- ଏହି ଏକକରୁ ୫ଟି ୧ ନମ୍ବର ବିଶିଷ୍ଟ ପ୍ରଶ୍ନ ପଡ଼ିବ । ପ୍ରତ୍ୟେକ ପ୍ରଶ୍ନ ପାଇଁ ୪ଟି ଲେଖାଏଁ ସମ୍ଭାବ୍ୟ ଉତ୍ତର ଦିଆଯିବ । ସେଥିମଧ୍ୟରୁ ପରୀକ୍ଷାର୍ଥୀ କେବଳ ଠିକ୍ ଉତ୍ତରଟି ବାଛି ଲେଖିବେ ।

  ଏହାର ମୂଲ୍ୟ ୧ × ୫ = ୫ ନମ୍ବର ।

- ୪ଟି ୧ ନମ୍ବର ବିଶିଷ୍ଟ ପ୍ରଶ୍ନ ପଡ଼ିବ । ସେଥିରୁ ୩ଟି ଉତ୍ତର ଗୋଟିଏ ବାକ୍ୟରେ ଦେବାକୁ ହେବ ।

  ଏହାର ମୂଲ୍ୟ ୧ × ୩ = ୩ ନମ୍ବର ।

- ୩ଟି ୨ ନମ୍ବର ବିଶିଷ୍ଟ ପ୍ରଶ୍ନ ପଡ଼ିବ । ସେଥିରୁ ୨ଟିର ଉତ୍ତର ୨ଟି ବାକ୍ୟରେ ଦେବାକୁ ହେବ ।
  ଏହାର ମୂଲ୍ୟ ୨ × ୨ = ୪ ନମ୍ବର ।
- ୨ଟି ୩ ନମ୍ବର ବିଶିଷ୍ଟ ପ୍ରଶ୍ନ ପଡ଼ିବ । ସେଥିରୁ ୧ଟିର ଉତ୍ତର ୩୦ଟି ଶବ୍ଦ ମଧ୍ୟରେ ଦେବାକୁ ହେବ ।
  ଏହାର ମୂଲ୍ୟ ୩ × ୧ = ୩ ନମ୍ବର ।
- ୨ଟି ଦୀର୍ଘ ଉତ୍ତରମୂଳକ ପ୍ରଶ୍ନ ପଡ଼ିବ । ସେଥିରୁ ୧ଟିର ଉତ୍ତର ୧୫୦ଟି ଶବ୍ଦ ଦେବାକୁ ହେବ ।
  ଏହାର ମୂଲ୍ୟ ୫ ନମ୍ବର ।

ତୃତୀୟ ଏକକ (Unit – III) – ଗଳ୍ପ (୧୧ ପିରିଅଡ଼) **୨୦ ନମ୍ବର**

୧. ସଭ୍ୟ ଜମିଦାର - ଫଂକୀରମୋହନ ସେନାପତି
୨. ପତାକା ଉତ୍ତୋଳନ - ସୁରେନ୍ଦ୍ର ମହାନ୍ତି
୩. ଆକାଶ କଇଁଛ – ମନୋଜ ଦାସ

- ଏହି ଏକକରୁ ୫ଟି ୧ ନମ୍ବର ବିଶିଷ୍ଟ ପ୍ରଶ୍ନ ପଡ଼ିବ । ପ୍ରତ୍ୟେକ ପ୍ରଶ୍ନ ପାଇଁ ୪ଟି ଲେଖାଏଁ ସମ୍ଭାବ୍ୟ ଉତ୍ତର ଦିଆଯିବ । ସେଥିମଧ୍ୟରୁ ପରୀକ୍ଷାର୍ଥୀ କେବଳ ଠିକ୍ ଉତ୍ତରଟି ବାଛି ଲେଖିବେ ।
  ଏହାର ମୂଲ୍ୟ ୧ × ୫ = ୫ ନମ୍ବର ।
- ୪ଟି ୧ ନମ୍ବର ବିଶିଷ୍ଟ ପ୍ରଶ୍ନ ପଡ଼ିବ । ସେଥିରୁ ୩ଟି ଉତ୍ତର ଗୋଟିଏ ବାକ୍ୟରେ ଦେବାକୁ ହେବ ।
  ଏହାର ମୂଲ୍ୟ ୧ × ୩ = ୩ ନମ୍ବର ।
- ୩ଟି ୨ ନମ୍ବର ବିଶିଷ୍ଟ ପ୍ରଶ୍ନ ପଡ଼ିବ । ସେଥିରୁ ୨ଟିର ଉତ୍ତର ୨ଟି ବାକ୍ୟରେ ଦେବାକୁ ହେବ ।
  ଏହାର ମୂଲ୍ୟ ୨ × ୨ = ୪ ନମ୍ବର ।
- ୨ଟି ୩ ନମ୍ବର ବିଶିଷ୍ଟ ପ୍ରଶ୍ନ ପଡ଼ିବ । ସେଥିରୁ ୧ଟିର ଉତ୍ତର ୩୦ଟି ଶବ୍ଦ ମଧ୍ୟରେ ଦେବାକୁ ହେବ ।
  ଏହାର ମୂଲ୍ୟ ୩ × ୧ = ୩ ନମ୍ବର ।
- ୨ଟି ଦୀର୍ଘ ଉତ୍ତରମୂଳକ ପ୍ରଶ୍ନ ପଡ଼ିବ । ସେଥିରୁ ୧ଟିର ଉତ୍ତର ୧୫୦ଟି ଶବ୍ଦ ଦେବାକୁ ହେବ ।
  ଏହାର ମୂଲ୍ୟ ୫ ନମ୍ବର ।

ଚତୁର୍ଥ ଏକକ (Unit – IV) – ବୋଧଜ୍ଞାନ (୧୧ ପିରିଅଡ଼) **୨୦ ନମ୍ବର**

୧. ଅବବୋଧ ପରୀକ୍ଷଣ (କ) ଗଦ୍ୟାଂଶ – ୧୦ ନମ୍ବର
(ଖ) ପଦ୍ୟାଂଶ – ୧୦ ନମ୍ବର

- ଅବବୋଧ ପରୀକ୍ଷଣ ନିମନ୍ତେ ଏକ ଗଦ୍ୟ ଅନୁଚ୍ଛେଦ ଦିଆଯିବ ।
  ସେଥିରୁ ପ୍ରଥମ ୪ଟି ୧ ନମ୍ବର ବିଶିଷ୍ଟ ପ୍ରଶ୍ନ ପଡ଼ିବ । ପ୍ରତ୍ୟେକ ପ୍ରଶ୍ନର ଉତ୍ତର ଗୋଟିଏ ବାକ୍ୟରେ ଦେବାକୁ ହେବ ।
  ଏହାର ମୂଲ୍ୟ ୧ × ୪ = ୪ ନମ୍ବର ।
  ପୁନଶ୍ଚ
  ୩ଟି ୨ ନମ୍ବର ବିଶିଷ୍ଟ ପ୍ରଶ୍ନ ପଡ଼ିବ । ପ୍ରତ୍ୟେକ ପ୍ରଶ୍ନର ଉତ୍ତର ୨ଟି ବାକ୍ୟରେ ଦେବାକୁ ହେବ ।
  ଏହାର ମୂଲ୍ୟ ୨ × ୩ = ୬ ନମ୍ବର ।

(ଖ) ଗୋଟିଏ ଅଜ୍ଞାତ କବିତା ଦିଆଯିବ । ପ୍ରଥମ ୪ଟି ୧ ନମ୍ବର ବିଶିଷ୍ଟ ପ୍ରଶ୍ନ ପଡ଼ିବ । ପ୍ରତ୍ୟେକ ପ୍ରଶ୍ନର ଉତ୍ତର ଗୋଟିଏ ବାକ୍ୟରେ ଦେବାକୁ ହେବ ।

ଏହାର ମୂଲ୍ୟ ୧ × ୪ = ୪ ନମ୍ବର ।

ପୁନଶ୍ଚ ସେଥିରେ ୩ଟି ବିଶିଷ୍ଟ ପ୍ରଶ୍ନ ପଡ଼ିବ । ପ୍ରତ୍ୟେକ ପ୍ରଶ୍ନର ଉତ୍ତର ୨ଟି ବାକ୍ୟରେ ଦେବାକୁ ହେବ ।

ଏହାର ମୂଲ୍ୟ ୨ × ୩ = ୬ ନମ୍ବର ।

ପଞ୍ଚମ ଏକକ (Unit – V) - ପ୍ରବନ୍ଧ ଓ ବ୍ୟାକରଣ (୧ ୨ ପିରିଅଡ଼) **୨୦ ନମ୍ବର**

(କ) ଦରଖାସ୍ତ ଓ ପତ୍ର ଲିଖନ

(ବ୍ୟବସାୟିକ, ବ୍ୟକ୍ତିଗତ, ବୃତ୍ତି ନିମିତ୍ତ, ସରକାରୀ କାର୍ଯ୍ୟାଳୟ ସମ୍ବନ୍ଧୀୟ, ସାମୟିକ ଛୁଟି ଓ ସଂପାଦକଙ୍କୁ ପତ୍ର)

(ଖ) ସଂକ୍ଷିପ୍ତକରଣ

(ଗ) ବ୍ୟାକରଣ

୧) ରୂଢ଼ିକୁ ବାକ୍ୟରେ ପ୍ରୟୋଗ

୨) ବିପରୀତ ଅର୍ଥବୋଧକ ଶବ୍ଦ

- ଦରଖାସ୍ତ ଓ ପତ୍ରଲିଖନରୁ ୨ଟି ପ୍ରଶ୍ନ ପଡ଼ିବ । ସେଥିରୁ ଗୋଟିଏ ଉତ୍ତର ଦେବାକୁ ହେବ ।

  ଏହାର ମୂଲ୍ୟ ୫ × ୧ = ୫ ନମ୍ବର ।

- ସଂକ୍ଷିପ୍ତକରଣ ନିମନ୍ତେ ଏକ ଗଦ୍ୟ ଅନୁଚ୍ଛେଦ ଦିଆଯିବ । ସେଥିରୁ ପରୀକ୍ଷାର୍ଥୀ ଏକ ତୃତୀୟାଂଶ ଶବ୍ଦରେ ଉତ୍ତର ଦେବାକୁ ହେବ ।

  ଏହାର ମୂଲ୍ୟ ୫ × ୧ = ୫ ନମ୍ବର ।

- ରୂଢ଼ି ପ୍ରୟୋଗ ଏବଂ ବିପରୀତ ଅର୍ଥବୋଧକ ଶବ୍ଦରୁ ୮ଟି ଲେଖାଏଁ ପ୍ରଶ୍ନ ପଡ଼ିବ । ସେଥିରୁ ୫ଟି ଲେଖାଏଁ ଉତ୍ତର ଦେବାକୁ ହେବ ।

  ଏହାର ମୂଲ୍ୟ ୧ × ୫ = ୫, ୧ × ୫ = ୫ = ୧୦ ନମ୍ବର ।

ପାଠ୍ୟଗ୍ରନ୍ଥ – ସାହିତ୍ୟ ଜ୍ୟୋତି, ଦ୍ୱାଦଶ ଶ୍ରେଣୀ

ଓଡ଼ିଶା ରାଜ୍ୟ ପାଠ୍ୟ ପୁସ୍ତକ ପ୍ରଣୟନ ଓ ପ୍ରକାଶନ ସଂସ୍ଥା, ଭୁବନେଶ୍ୱର

♦♦♦

Revised Syllabus for 2020-21
M.I.L. (BENGALI)
(Compulsory)
First Year

LANGUAGE - 50 MARKS

UNIT - I **Grammar = 30 Marks**

1 deleted

2. Synonyn / Antonym (with alternatives) 2 x 5 10

3. Proverbs and Indioms (with alternatives) - 2 x 5 = 10

UNIT - II Deleted

UNIT – III (Composition) - Letter writing = 10

(Personal letters Friends and Parents with alternatives)

LITERATURE - 50 MARKS

UNIT - IV Text book Prescribed

1. Prose one question one explanation 15= Q + 2 + 2 + 2 + 4 Expl - 5

2. Poetry - one question on explanation 15 = Q = 2 + 2 + 2 + 4 Expl = 5

(Alternatives will be given)

UNIT - V Novel (one question) 5 + 5 = 10

UNIT - VI Essay (one out of three) 10

Books Prescribed :

PROSE :

Uchha Madhyamik BangiaSankalan. (Gadya) for Class XI & XII. Published by Paschim Banga Uchha Madhyamik SikshaSansad, Viswa Varati.

The following pieces are to be studied in the first year:

1. BangladesheNilkar - Pyarichand Mitra.
2. Sitar Banabas - Iswarchandra Vidyasagar.
3. Bisarjan - BankimchandraChattopadhya
4. Sudra gagaran - Swami Vivekananda.

UNIT - II

POETRY:

Madhukari - Kalidas Ray
(Published by Orient Book Company, Kolkata -12)

The following pieces are to be studied in the first year:-

1. Srigoura Chandra - Gobinda das kabiraj.
2. Bhabollas - Vidyapati
3. PremerTulana - DurijaChandidas
4. AvigirAkshep - Gyandas

UNIT - III

NOVEL - (Non-Detailed)

Deleted

UNIT - IV

Grammar

Proverbs and Indioms, Sentence and word formation Annonyms and Synonyms.

Distribution of Marks of Unit wise :-

Unit - I Prose

A. Two short Answer type questions with alternatives Q 1 - 2+2+2+4 = 10
B. One explanation with alternatives Expl - 5
C. Five very Short Answer type questions with alternative

Unit - II Poetry

A. Two short Answer type Questions with alternative- 2 x 5 =10
B. One explanation with alternative
C. Five very short answer type questions with alternative

Unit - III Novel (Non datail) -

A. Four short answer type Question with alternative Q 4 x 10 = 40

Unit - IV Grammar & Essay - Q 1x10 = 10

A. Grammar objective type 10 Questions with alternative containing 2 marks 5 =10
B. Essay/ One essay with three alternatives – 10

M.I.L. (Bengali)
SECOND YEAR
F.M. - 100
Time - 3 hrs.

The examination shall be conducted at the end of XII Class at Council level.

Books Prescribed:

UNIT - I PROSE :

Uchha Madhyamik BangiaSankal”an (Gadya) for Class XI & XII.
Published by Paschim Banga Uchha Madhyamik SikshaSansad, Viswa Varati.

The following pieces are to be studied in the Second year :-

1. BangiaBhasa - HaraprasadSastri
2. TotaKahini - Rabindranath Tagore
3. NaishaAvijaa - Sarat Ch. Chattopadhayay
4. Deleted

UNIT - II Madhukari - Kalidas Ray
(Published by Orient Book Company, Kolkata -12)
Pieces to be Studied:

1. Baisakh - Oebendra Nath Sen
2. LoharByatha - Jatindra Nath Sengupta
3. Deleted
4. Rupai - Jasimuddin

UNT - III NOVEL - (Non-detailed Study)

Deleted

UNIT - IV Grammar and Essay

(i) Pada Paribartan
(iii) SomochharitaBhinnaTharkSobda and its application in sentences.
(in Composition letter writing and proverb)

Distribution of marks of unit wise :-

There shall be four units.

Unit – I Prose

A. Two short Answer type questions with alternatives -
B. One explanation with alternatives -
C. Five very Short Answer type questions with alternative-

Unit - II Poetry

A. Two short Answer type Questions with alternative
B. One explanation with alternative
C. Five very short answer type questions with alternative

Unit - III Novel (Non datail) -

A. Four short answer type Question with alternative

Unit-IV Grammar & Essay-

A. Grammar objective type 1.0 Questions with alternative containing. 2 marks each
B. Essay/ One essay with three alternatives -

M.I.L. (BENGALI)

2ND YEAR, TIME 3 HRS. MAXIMUM MARKS = 100

LANGUAGE = 50 MARKS

UNIT - I Grammar = 30 Marks

1. Samas (DawandaSamas, Bahubrihi 2 x 5 = 10 and Karmadharayan
2. Synonym / Antonym (with alternatives) 2 x 5 10
3. Proverbs and Indioms (with alternatives) - 2 x 5 = 10

UNIT - II Amplification (Bhabsamprasaran) (2) 5 x 2 = 10

UNIT - III (Composition) - Letter writing = 10

(Personal letters Friends and Parents with alternatives)

LITERATURE - 50 MARKS

UNIT - IV Text book Prescribed

1. Prose one question one explanation 15= Q + 2 + 2 + 2 + 4 Expl - 5
2. Poetry - one question on explanation 15 = Q = 2 + 2 + 2 + 4 Expl = 5

(Alternatives will be given)

UNIT - V Novel (one question) 5 + 5 = 10

UNIT - VI Essay (one out of three) 10

UNIT - IV

Grammar

Proverbs and indioms, Sentence and word formation Annonyms and Synonyms.

Distribution of Marks of Unit wise :-

Unit – IProse Q 1 - 2+2+2+4 = 10 + Expl - 5 = 15

A. Two short Answer type questions with alternatives.
B. One explanation with alternatives
C. Five very Short Answer types questions with alternative

Unit - II Poetry

A. Two short Answer type Questions with alternative
B. One explanation with alternative
C. Five very Short Answer type questions with alternative

Unit - III Novel (Non detail)-

A. Four short answer type Question with alternative

Unit - IV Grammar & Essay -

A. Grammar objective type 10 Questions with alternative containing

B. Essay/ One essay with three alternatives -

M.I.L (Bengali)
SECOND YEAR
F.M. - 100
Time - 3 hrs.

The examination shall be conducted at the end of XII Class at Council level.

Books Prescribed:

UNIT-I PROSE:

Uchha Madhyamik BangiaSankal"an (Gadya) for Class XI & XII.
Published by Paschim Banga Uchha Madhyamik SikshaSansad, Viswa Varati.
The following pieces are to be studied in the Second year :-

1. BangiaBhasa - HaraprasadSastri
2. TotaKahini - Rabindranath Tagore
3. NaishaAvijaa - Sarat Ch. Chattopadhayay
4. Aranyak - BibhutiBhusanBandopadhay

UNIT - II POETRY :

Madhukari - Kalidas Ray
(Published by Orient Book Company, Kolkata -12)
Pieces to be Studied:

1. Baisakh - Oebendra Nath Sen
2. LoharByatha - Jatindra Nath Sengupta
3. Swarga HaiteViday - Rabindra nath Tagore
4. Rupai–Jasimuddin

Revised Syllabus for session2020-21
M.I.L (HINDI) - I
First Year
DETAILED SYLLABUS

Time - 3 Hours Full Marks – 100 **No. of Classes reduced to 56**

पाठ्यपुस्तक :अमृत भारती, भाग - 1

Published by Odisha State Bureau of Textbook Preparation and Production.

Unit - I :**अपठितगद्यांश / काव्यांश** : (**15**)

(1) अपठित गद्यांश - बोध (गद्यांशपरआधारितबोध, प्रयोग, रचनांन्स, शीर्षकपरआधारित सछूतरीप्रश्न -

(2) काव्यांश परआधारितअतिसछूतरीप्रश्न -

Unit - II : **कार्यालयी हिन्दीऔररचनात्मकलेखन**

1. संक्षेपण
2. निबंधलेखन
3. व्याकरण

i) उपसर्गऔर प्रत्यय

ii) किया

iii) काल

Unit- III : **काव्य भाग**

i) कबीरदास - दोहे

ii) सूरदासबाललीला

iii) मीरा - पद्

iv) बिहारी - दोहू

v) सुमित्रानंदनपंत - भारतमाता

vi) नागार्जुन - बहुतदिनोंकेबाद

vii) अशेय - हीरोशिमा

viii) दुब्सन्तकुमार - होगईहैपीरपर्वत - सी

ix) केदारनाथसिंह - रोटी

प्रश्न : i) विकल्प चयन -

ii) एक वाक्य मेंउत्तर -

iii) दो वाक्यों मेंउत्तर -

iv) तीन वाक्यों मेंउत्तर -

v) दीर्घउत्तर -

Unit- IV :गद्य भाग

i) प्रेमचंद - जीयन मे साहित्य कास्थान

iii) रामधारीसिंह 'दिनकर' - ईष्या, तु नगईमेरेमनसे

iv) रामविलासशर्मा - अतिथिप्रश्न - पद्यपाठकेअनुस्प

Unit- V :काहानी

i) प्रेमचंद - बूढीकाकी

ii) जयशंकर प्रसाद - ममता

iii) भगयतीचरण यर्मा -कुंवरसरहबकाकुता

iv) उदयप्रकाश - अपराध

प्रश्न - दीर्घउत्तरमूलक2 प्रण्न

M.I.L (HINDI) - II
Second Year
DETAILED SYLLABUS
Time - 3 Hours Full Marks – 100 Total Classes reduced to 56

पाठ्यपुस्तक :अमृत भारती, भाग - 2

Published by Odisha State Bureau of Textbook Preparation and Production.

Unit - I :अपठितअंश । गद्यएवंपद्य

i) गद्यांश - बोध, प्रयोग, रचना, शीर्षकआदिपरलघूत्तएत्मकप्रश्न

i) पद्यांश - बोध, मर्मआदिपरलघूत्तएत्मकप्रश्न

Unit - II

(क) प्रयोजनमूलक हिन्दीऔररचना :

i) पल्लवन

ii) पत्र - लेखन

(ख) व्याकरण

i) लिग

ii) वचन

iii) संज्ञा - विशेषणके प्रयोग

Unit - III :

काव्य :

ii) तुलसीदास - राम- विमीषणमिलन

प्रश्न :

i) विकल्ल चयन

ii) एक वाक्य मा उत्तर

iii) मैथिलीशणगुप्त - नरहो, ननिएशकरोमनको iii) दो वाक्यो मेउत्तर

iv) निराला - वीणावादिनीवट हे, बादल एग

iv) तीन वाक्यों मेउत्तर

vi) सुनन्दाकुमारी चौहान - सॉसीकीरानी v) दीर्घउत्तर

vii) मुक्तिबोध - पूॅजीवादीसमाजकेप्रटि

viii) मंगलेशडबराल - ताकतकी दुनिया

Unit - IV :गद्यपाठ :

i) बालकृष्ण भट्ट - आत्मानिर्भरता

iii) शरहजोशी - टुमजाओगे, अतिथि

iv) बचेन्द्रपाल - एवरेस्य :मेरीशिखर यात्रा

प्रश्न :पद्यपाठकेअनुरूप

Unit - V :

i) अज्ञेय - खितिनबाबू

ii) मोहनएकेश - परमात्माकाकुत्ता

iv) भारतभुषणअग्रवाल - महाभारतकीएकसॉझ

Revised Syllabus For the Session 2020-21
M.I.L (TELUGU)
FIRST YEAR
(Compulsory)
Time 3 hours Full Marks 100

There shall be one paper carrying 100 marks of 3 hours duration consisting of four units. The examination shall be conducted at the end of First Year of college/H.S. School. ,

DISTRIBUTION OF MARKS

Group-A (Objective Type)

1. Thirty very short questions (from unit I, II & III) 30x1 =30 Marks
2. Ten very short questions (from unit IV-A) 10x1=10 Marks

Group-B (short Type Questions)

3. Six short questions (from Unit!, II & III) 6x2=12 Marks
4. Four explanation (only Bhavartha from unit I & II) 4x2=8 Marks

.

5. Five short questions (from Unit IV-A). 5x2=10Marks

Group -C (Long Type Questions)

6. Three long questions with alternative 3x7=21 Marks
7. Letter writing/essay with alternative(from unit IV-B) 1x9=9 Marks

TOTAL - 100 marks

TOPICS TO BE STUDIED :

UNIT - I POETRY: (12periods)

1. Ekalavyudu - NannayaBhattu
2. BalivamanaSamvadamu - BammeraPotana
3. Subhashitamulu - Enugu Lakshmana Kavi

UNIT-II PROSE : (12periods)

1. MitraLabhamu - ParavastuChtnnayasuri
2. Vemana - Dr.G.V.Krishna Rao
4. AIDS - Dr.Singupuram Narayana Rao
5. TeiuguPatrikalaPurvaRangam- NamalaVisveswara Rao

UNIT - III NON - DETAIL : (10 periods)

Raja RajaPrasasti- Prof..S.Gangappa

UNIT - IV (A) GRAMMER : (10periods)

Vibhaktulu - Pratyayalu, Prakruti -Vikrutulu,

B) WRITING / GENERAL ESSAY: (05 periods)

BOOKS PRESCRIBED :

1. Poetry &Prose : SAHITEE VIPANCHI
- By Dr.Singupuram Narayana Rao
2. Non-Detail : RAJA RAJA PRSASTI
- By Prof. S. Gangappa
3. Grammar VYAKARANA PARIJATAMU
- By Dr.Singupuram Narayana Rao

M.I.L (TELUGU)
SECOND YEAR
(Compulsory)
Time 3 hours No of Periods : Weekly-5 Full Marks 100
Yearly 80

There shall be one paper carrying 100 marks of 3 hours duration consisting of four units. The examination shall be conducted at the end of Second Year at Council level.

DISTRIBUTION OF MARKS

Group-A (Objective Type)

1. Thirty very short questions (from unit), II & III) 30x1 =30 Marks
2. Ten very short questions (from unit IV-A) 10x1=10 Marks

Arts Stream 26

Group-B (short Type Questions)

3. Six short questions(from Unit I, II & III) 6x2=12 Marks
4. Four explanations (only Bhavartha from unit! & II) 4x2=8 Marks
5. Five short questions (from Unit IV-A) 5x2=10 Marks

Group -C (Long Type Questions)

6. Three long questions with alternative 3x7=21 Marks
7. Re-Translation (from unit iv-B) 1x9=9 Marks

TOTAL 100 marks

TOPICS TO BE STUDIED:

UNIT - I POETRY : (12 periods)

1. Sanjaya Rayabharamu - TikkanaSomayaji
2. Hanumatsandesamu - AtukuriMolla
3. Piradausi.Lekha - GurramJashuwa

UNIT - II PROSE: (12 periods)

1. MitraBhedamu - ParavastuChinnayasuri
2. Rayaprolustreevadadrukpadham - Prof K.Yadagiri

UNIT - III NON-DETAIL: (10 periods)

Rudrama Devi **-** Smt. P.B. Kausalya**(Upto Page 53)**

UNIT - IV A) GRAMMAR : (10 periods)

Paribhashikapadamulu
Chandssu :Utpalamala, Champakamaia,
Sardhulamu,
Aiankaramuiu :Upama, Rupaka, Utpreksha,

B) RE-TRANSLATION (English to Telugu) :(05 periods)

BOOKS PRESCRIBED :

1) Poetry &Prose :SahiteeMandaram
- By Dr.Singupuram Narayana Rao

2) Non-Detai :Rudramadevi
- By Smt. P.B. Kausalya

3) Grammar :Vyakarana Parijatamu
- By Dr.Singupuram Narayana Rao

Revised Syllabus 2020-21

M.I.L. (URDU)

(Compulsory)
FIRST YEAR
Total Class-50

Time-3hrs. **F.M.-100**

There Shall be one Paper carrying 100 marks consisting of 3 (three) groups and duration of examination will be of 3 (three) hours at the college / H.S.E level.

Distribution of marks

GROUP - A

30 MARKS

Very Short Type Answer

Objective type questions from all units Prose, Poetry and non-detailed

A.	Five objective type questions from prose	1x5 = 5 Marks
B.	Five objective type questions from poetry	1x5 = 5 Marks
C.	Five objective type questions from Non-detailed	1x5 = 5 Marks
		Total 15 Marks

Grammar

2. A. One word answer five questions	1x5 = 5 Marks
B. Very short answer five questions	1x5 = 5 Marks
C. Fill up the Blanks five questions	1x5 = 5 Marks
	Total 15 Marks

GROUP -B

40 MARKS

Short Type Answer

3. Answer within two/three sentences

A.	Prose-Six questions to be answered out of eight questions	6 x 2 = 12 Marks
B.	Poetry-Five questions to be answered out of seven questions	5x2 = 10 Marks
		Total = 22 Marks

Answer within six sentences

A. Prose- Three questions to be answered out of four questions. 3x3 = 09 Marks
Ghazaliyat- Three Ashaar explanation to be answered out of four Ashaar.
3 x 3 = 09 Marks
Total = 18 Marks

GROUP-B

30 MARKS

Logn Type Answer..

Prose : One long answer type question about 150 words with an alternative from prose portion.
7.5 Marks

Poetry : One long answer type question about 150 words with an alternative from poetry.
7.5 Marks

Non detailed - on long answer type question about 150 words with an alternative from non-detailed portion. 7.5 Marks

Letter / Application : One Letter Writing / application writing about 100 words.
7.5 Marks

Books Prescribed :

JADID ADAS PARE

Recommended Book “JADID ADAB PARE”,

Published by Odisha State Bureau of Text Book preparation and Production, BBSR.

Revised Syllabus URDU (MIL)

Unit I -I

1. Prose Portion : 15 Classes

Portions to be studied :

i. QaumiHamdardee - Altaf Hossain Mali
ii. SairPahleDarwesh Ki - Mir Amman
iii. Mitti Ka Tel - Hasan Nezami.
Bahadur Shah-Do GhazZamien - Dr.Mahfuzul Hassan

Unit - II **12Classes**

(a) Poetry Portion :

Portions to be studied :

i. Aata Dal - Nazir.
ii. Tasweere-e-Dard - Iqbal.
iii. JoganAur Chandni Raat - Mir Hasan
iv. Naojawanon-se-khetab - Josh

(b) GhazaliyatPortions :

Ghalib, ii. Dard, iii. Aatish, iv. Momim

Unit - III **10 Classes**

Non detailed studies :

Any one of the following books only first half of the books in the 1st year.

I. TAUBATUN NASOOH

by : Deputy Nazeer Ahemad

Pulisher: Maktab-E-Jamiya LTD.

Jamia Nagar, New Delhi -110025

MUSADDAS-E-HALI (only Tahmid ka Portion to be Studied)

(by : Altaf Husain Mali

Pulisher: Educational Book House Aligarh (UP)

Unit - IV **2 Classes**

Letter Writing :

There shall be letter Writing /Application Writing

Grammar:

URDU ZOBAN-O-QUWAID PART- 15 Classes

1 by :Shafi Ahmad Siddiqui Portions to be studied :

Tazkir-o-Tsrees

GhalatJumleAurUnkiIslah

MIL URDU
SECOND YEAR
Total Clss-80

Time- 3hrs **F.M.-100**

There Shall be one Paper carrying 100 marks consisting of 3 (three) groups and duration of examination will be of 3 (three) hours at the C.H.S.E. / H.S.E Level

Distribution of Marks

GROUP-A

30 MARKS

Very Short type Answer.

Objective type questions from all units Prose, Poetry and non-detailed

A.	Five objective type questions from prose	1x5 = 5 Marks
B.	Five objective type questions from poetry	1x5 = 5 Marks
C.	Five objective type questions from Non-detailed	1x5 = 5 Marks
		Total = 15 Marks

Grammar

2. A.	One word answer five questions	1x5 = 5 Marks
B.	Very short answer five questions	1x5 = 5 Marks
C.	Fill up the Blanks five questions	1x5 = 5 Marks
		Total = 15 Marks

GROUP-B **40 MARKS**

Short Type Answer

Answer within two/three sentences

Comperhension of an unseen passage of about 150 words. Followed by seven questions to answered out of nine question. 7x2 = 14 Marks

B. Prose : Four questions to be answered out of six questions 4 x 2 = 08 Marks

Total = 22 Marks

Answer within six sentences

Prose : Three questions to be answered out of four questions. 3 x 3 = 09 Marks

Ghazaliyat: Three Ashaar explanation to be answered out of four Ashaar.

3 x 3 = 09 Marks

Total = 18 Marks

GROUP-C **30 MARKS**

Long Type Answer

Prose : One long answer type question about 150 words with an alternative from prose portion.7.5 Marks

Poetry : One long answer type question about 150 words with an alternative from poetry. 7.5 Marks

Non detailed - on long answer type question about 150 words with an alternative from non-detailed portion. 7.5 Marks

Essay : One long answer type question about 150 words with three alternatives. 7.5 Mark

Books Prescribed :

JADID ADAB PARE

Recommended Book "JADID ADAB PARE", PART-II

Published by Odisha State Bureau of Text Book preparation and Production, BBSR.

Unit - I 15 Classes

Prose Portions :

Portions to be studied :

I. Hindu MusalmanEikQaum Hain - Sir Sayed Ahmad Khan
II. Haqeeqi Azmat - Moulana Abul Kalam Azad.
III. UstadkiTalash - Farhatullah Baig

Unit - II 12 Classes

(a) Poetry Portions :

Portions to be studied :

I. ShammaParwana — Iqbal.

IV. TajmahalkiPahliJhalak Per- Karamat Ali Karamat

(b) Ghazaliyat and Rubaiyat Portions :

Dagh, ii. Shad , iv. Jami

Unit - III 10 Classes

Non detailed studies :

Any one of the following books only last half of the books in the 2nd year.

i. TAUBATUN NASOOH

by : Deputy Nazeer Ahemad

Pulisher: Maktab-E-Jamiya LTD.

Jamia Nagar, New Delhi -110025

ii. MUSADDAS -E -HALI (Only Zamina Ka Portion to be studied)

by: Altaf Husain Hali

Publisher: Educational Book House Aligarh (UP)

Unit - IV 2 Classes

(a) Essay:

There shall be one general Essay with three alternatives

(b) Comprehension

Grammar: I 10 Classes

URDU ZOBAN-O-QUWAID PART-

by :Shafi Ahmad Siddiqui Portions

to be studied :

I. Wahid-O-Jama
II. MutazadAlfaz

Revised Syllabus for the session 2020-21

PHYSICS (Theory)

+2 1st Year Science

Unit-I Physical world and Measurement (6 Periods)

Sl Units, accuracy and precision of measuring instruments, errors in measurement, absolute, relative error, percentage of error, Combination of errors, significant figures.

Dimensions of Physical quantities. Dimensional analysis and its applications.

Unit – II Kinematics. (18 Periods)

1. Motion in a straight line:

Rest and motion, Frame of reference, motion in a Straight line, position – time graph, speed and velocity, uniform and non-uniform motion, average speed and instantaneous velocity, uniformly accelerated motion, velocity – time and position – time graph, Relation for uniformly accelerated motion (graphical treatment)

2. Motion in a plane:

Scalars and vectors, general vectors and their notations, position and displacement vectors, equality of vectors, unit vectors, multiplication of vectors by a real number, addition and subtraction of vectors, relative velocity, resolution of a vector in a plane, rectangular components, Dot and Cross products of two vectors.

Motion in a plane, cases of uniform velocity and uniform acceleration – projectile motion; uniform circular motion.

Unit-III Laws of Motion (10 Periods)

Concept of force, inertia, momentum, impulse, impulse-momentum theorem, Newton's Laws of motion, Law of Conservation of linear momentum and its application.

Static and Kinetic friction, laws of friction, rolling friction.

Dynamics of uniform circular motion, Centripetal force, motion of a vehicle on a level circular road and vehicle on a banked road.

Unit-IV Work, Energy and Power (10 Periods)

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

Notion of potential energy, conservative and non-conservative forces, conservation of mechanical energy (Kinetic and Potential energies), elastic and in-elastic collisions in one dimension, coefficient of restitution.

Unit-V Motion of System of Particles and Rigid bodies: (12 Periods)

System of Particles and Rotational Motion:

Centre of mass of a two-particle system, momentum conservation and centre of mass motion, centre of mass of rigid bodies, Centre of Mass of a uniform rod.

Moment of a force, torque, angular momentum, conservation of angular momentum with its applications.

Moment of inertia, radius of gyration, moment of inertia of simple geometrical objects (no derivation).

Unit-VI Gravitation (08 Periods)

Newton's law of gravitation, Gravitational field and Potential, gravitational potential energy, acceleration due to gravity and its variation with altitude and depth, Escape velocity, orbital velocity of a satellite.

Unit-VII Properties of Bulk Matter (18 Periods)

1. Mechanical properties of Solids:

Elastic Behaviours, Stress, Strain, Hooke's Law, Stress-Strain diagram, Young's modulus, Bulk modulus, Shear modulus of rigidity, Poisson's ratio, elastic energy.

2. Mechanical properties of fluids:

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

Viscosity, Stoke's law, terminal velocity, streamline and turbulent flow, critical velocity, Bernoulli's theorem and its application.

3. Thermal properties of matter:

Concepts of heat and temperature, Thermal expansion of solids, liquids and gases, specific heat capacity: Cp, Cv. Calorimetry, change of state, latent heat capacity.

Heat transfer: Conduction, Convection and radiation, thermal conductivity, qualitative ideas of block body radiation, Wien's displacement law, Stefan's law. **Unit-VIII Thermodynamics (10 Periods)**

Thermal equilibrium, definition of temperature (Zeroth law of thermodynamics) heat, work and internal energy. First law of thermodynamics, isothermal and adiabatic processes, second law of thermodynamics, reversible and irreversible processes, Carnot's engine and its efficiency (no derivation).

Unit-IX Kinetic theory of gases: (04 Periods)

Equation of state of a perfect gas, work done in compressing a gas. Pressure exerted by an ideal gas (elementary idea), kinetic interpretation of temperature, mean and RMS speed of gas molecules, degrees of freedom, law of equipartition of energy (statement only) and its applications to specific heat of gases.

Unit-X Oscillation and waves (18 Periods)

1. Periodic motion: Period, Frequency, displacement as a function of time, periodic function. Simple harmonic motion and its equation, phase, oscillation of a spring, Restoring force and force constant, kinetic and potential energy in SHM, simple pendulum, derivation of expression for its time period.

2. Waves:

Wave motion, transverse and longitudinal waves, speed of wave motion, displacement relation for a progressive wave, speed of longitudinal wave in an elastic medium and speed of transverse wave in a stretched string (qualitative idea only), principle of superposition of waves, reflection of waves, standing waves in strings and organ pipes.

***** UNIT WISE MARK DISTRIBUTION (Physics Theory) and QUESTION WISE BREAK UP REMAINS THE SAME AS THEIR IN EARLIER SYLLABUS.***

PRACTICALS

Total Periods 40

Section A

Experiments

1. To measure diameter of a small spherical/cylindrical body using Vernier calipers and to measure internal diameter and depth of a given beaker/calorimeter using Vernier calipers and hence find its volume.
2. To measure diameter of a given wire and thickness of a given sheet using screw gauge.
3. To measure volume of an irregular lamina using screw gauge.
4. To determine radius of curvature of a given spherical surface by a spherometer.
5. To determine the mass of two different objects using a beam balance.
6. To find the weight of a given body using parallelogram law of vectors,
7. Using a simple pendulum, plot L-T^2 graph and hence find the effective length of a second's pendulum.

Section B

Experiments

1. To determine young's modulus of elasticity of the material of a given wire.
2. To determine the surface tension of water by capillary rise method.
3. To determine the coefficient of viscosity of a given viscous liquid by measuring the terminal velocity of a given spherical body.
4. To study the relationship between the temperature of a hot body and time by plotting a cooling curve.
5. To study the relation between frequency and length of a given wire under constant tension using sonometer.
6. To study the relation between the length of a given wire and tension for constant frequency using sonometer.
7. To find the speed of sound in air at room temperature using a resonance tube by two resonance positions.

PHYSICS (Theory)
+2 2nd Year Science

Unit-I Electrostatics (16 Periods)

1. Electric charges and fields:

Electric charge and its quantization, conservation of charge, Coulomb's law, force between two point charges, force between multiple charges, superposition principle, Continuous change distribution.

Electric field due to a point charge, electric field lines, electric field due to a dipole at any point, torque on a dipole in uniform electric field.

Electric flux, Gauss's theorem (statement only) and its applications to find field due to uniformly charged infinite plane sheet, infinitely long straight wire.

2. Electrostatic potential and capacitance:

Electric potential, potential difference, electric potential due to a point charge, potential due to a dipole, potential due to a system of charges. Equipotential surfaces, electrical potential energy of a system of two point charges and of electric dipole in an electrostatic field.

Conductors, insulators, free charges and bound charges inside a conductor, Dielectrics and electric polarization, capacitors and capacitance, capacitance of

a parallel plate capacitor with and without dielectric medium between the plates, combination of capacitors in series and in parallel, energy stored in a capacitor.

Unit- II Current Electricity: (14 Periods)

Electric current, drift velocity, mobility and their relation with electric current, Ohm's law, electrical resistance, conductance, resistivity, conductivity, effect of temperature on resistance, V – I characteristics (linear and non-linear), electrical energy and power.

EMF and potential difference, internal resistance of a cell, combination of cells in series and parallel, Kirchhoff's laws and simple applications. Wheatstone bridge and Meter Bridge. Potentiometer-Principle and its applications to measure potential difference and for comparing EMF of two cells; measurement of internal resistance of a cell.

Unit-III Magnetic effect of Current and magnetism: (16 Periods)

1. Moving charges and magnetism:

Concept of magnetic field, Biot-Savart law and its application to find magnetic field on the axis and at the centre of a current carrying circular loop, Ampere's law and its application to infinitely long straight wire. Straight and toroidal solenoid (qualitative treatment only); Force on a moving charge in uniform magnetic and electric fields.

Force on a current carrying conductor in a uniform magnetic field, force between two parallel current carrying conductors- definition of ampere, torque experienced by a current loop in uniform magnetic field, moving coil galvanometer- its current sensitivity and conversion to ammeter and voltmeter.

2. Magnetism and matter:

Current loop as a magnetic dipole and its magnetic dipole moment, magnetic dipole moment of a revolving electron, magnetic field lines, earth's magnetic field and magnetic elements.

Para-, dia- and ferro- magnetic substances with examples.

Unit-IV Electromagnetic induction and Alternating current: (12 Periods)

1. Electromagnetic induction:

Faraday' laws of electromagnetic induction, motional EMF and current induced due to it, Lenz's law, Eddy currents, self and mutual induction.

2. Alternating Current:

Alternating currents, peak and RMS value of alternating current / voltage, reactance and impedance, LC oscillation (qualitative idea only), LCR series circuit (qualitative idea using impedance triangle), resonance, power in AC circuits, wattles current, Transformer (Principle of working & efficiency).

Unit-V Electromagnetic waves: (02 Periods)

Electromagnetic spectrum (radio waves, microwaves, infrared, visible, Ultra violet, X-ray and gamma rays), including elementary ideas about their uses.

Unit-VI Optics (20 Periods)

1. Ray optics and optical instruments:

Refraction of light, refractive index, its relation with velocity of light (formula only) total internal reflection and its applications, Refraction at spherical surfaces, thin lens formula, lens makers formula, magnification, power of lenses, combination of two thin lenses in contact, combination of a lens and a mirror, refraction and dispersion of light through prism.

Optical instruments: microscopes and telescopes (reflecting) and their magnifying powers.

2. Waves Optics:

Wave front, Huygen's principle, Interference, Young's double slit experiment and expression for fringe width, coherent sources, sustained interference of light, diffraction due to a single slit, width of a central maximum, polarization, plane polarized light, Brewster's law.

Unit-VII Dual nature of Radiation and matter: (06 Periods)

Dual nature of radiation, Photoelectric effect, Einstein's photoelectric equation, particle nature of light.

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

Unit-VIII Atoms and Nuclei (12 Periods)

1. Atoms:

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

2. Nuclei:

Atomic nucleus, its composition, size, nuclear mass, nature of nuclear force, mass defect, binding energy per nucleon and its variation with mass number, nuclear fission, fusion, Radioactivity, alpha, beta and gamma particles/ rays and their properties, radioactive decay law, half life and decay constant.

Unit-IX Semiconductor electronics: (12 Periods)

Energy bands in conductors, semiconductors and insulators (qualitative idea only), p-type, n-type semiconductors, semiconductor diode, V-I characteristics in forward and reverse bias, diode as a half and full wave rectifier (centre tap), efficiency (no derivation).

Junction transistor, transistor action, Characteristics of transistor, transistor as an amplifier (CE configuration), basic idea of analog and digital signals, Logic gates (OR, AND, NOT, NAND, and NOR).

Unit-X Communication System: (06 Periods)

Propagation of electromagnetic waves in the atmosphere, sky and space wave propagation, satellite communication, Need for-modulation, qualitative idea about amplitude modulation and frequency modulation, advantages of frequency modulation over amplitude modulation,

***** UNIT WISE MARK DISTRIBUTION (Physics Theory) and QUESTION WISE BREAK UP REMAINS THE SAME AS THEIR IN EARLIER SYLLABUS.***

PRACTICALS

Total Periods 40

Section A

Experiments

1. To determine resistance per cm of a given wire by plotting a graph for potential difference versus current.
2. To find resistance of a given wire using metre bridge and hence determine the resistivity of its material.
3. To verify the laws of combination (series) of resistances using a metre bridge.
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.
6. To determine the internal resistance of given primary cell using potentiometer.
7. To determine resistance of a galvanometer by half-deflection method and to find its figure of merit.

Section B

Experiments

1. To find the value of V for different values of *u* in case of a concave mirror and to find the focal length.

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

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

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

5. To determine refractive index of a glass slab using a travelling microscope.

6. To draw the I-V characteristic curve of a P-n junction in forward bias and reverse bias.

7. To draw the characteristic curve of a zener diode and to determine its reverse breakdown voltage.

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Modified Syllabus For Session 2020-21

SANSKRIT

(Elective)

FIRST YEAR

There shall be one paper carrying 100 marks.
The duration of Examination will be of three hours.

COURSE STRUCTURE

		Marks allotted
(a)	Reading skill	20
(b)	Writing skill	40
(c)	Literary text	40
		Total 100 Marks

Topics		Classes required
(a)	Poetry	30
(b)	Prose	25
(c)	History of Sanskrit Literature	10
(d)	Grammar and Translation	15
		Total 80 classes

PORTION TO BE STUDIED

(a) Poetry - Kumarasambhavam of Kalidasa (Canto V) **21 Periods**

कुमारसम्भबम् (पञ्चम सर्गः)(Verses 63 to 85 to be deleted)

(b) Prose - Sanskrutamandakini (Gadyabhagah) **18 Periods**

संस्कृतमन्दाकिनी (गद्यभागः)

1. उपमन्यु कथा (Upamanyukatha)
2. परहितसाधनम् (Parahitasadhanam)
3. मुद्रिकाप्राप्ति (Mudrikapraptih)
4. चन्द्रभूपतिकथा (Chandrabhupati Katha)
5. ससोमिराकथा (Sasemirakatha

(c) History of Sanskrit literature **07 Periods**

History of the following authors and their works are to be studied.

1. वाल्मीकि – Valmiki
2. व्यास - Vyasa
3. कालिदास - Kalidasa
4. भास – Bhasa
5. विष्णुशर्मा - Visnusarma
6. जयदेव – Jayadeva
7. विशवनाथकविराज - Visvanath Kaviraja

(d) Translation into Odia/English from the text (Prose and Poetry)

(e) Grammar **10 Periods**

01. Grammar from Prose and Poetry

i. कारक-विभक्ति (Karaka - vibhakti)

ii. प्रकृति प्रत्यय (Prakruti-pratyaya)

02. Topics from the Grammar text

i. कृदन्त - (Krudanta) - शतृ, शानच्, तव्य, अनीयर्, क्त, कत्वा, ल्यप्, तुमुन्,

ii. वाक्यरचनम् - (Sentence formation)

iii. भ्रमसंशोधन - (Correction of sentences)

BOOKS RECOMMENDED :

1) संस्कृतमन्दाकिनी - Published by Odisha State Bureau of Text Book Preparation and Production

2) संस्कृतसाहित्य-ईतिहास - History of Sankrit literature by A.B. Keith, Published by Odisha State Bureau of Text Book Preparation and Production.

3) व्याकरणदर्पणः - Published by Odisha State Bureau of Text Book Preparation and Production

4) कु संस्कृतकवि-परम्परा - Published by Odisha State Bureau of Text Book Preparation and Production

5) कुमारसम्भवम् - Published by Odisha State Bureau of Text Book Preparation and Production

QUESTIONS PATTERN AND DISTRIBUTION OF MARKS

SANKRIT (ELECTIVE)

FIRST YEAR

1. Reading skill : [20 Marks]
   - (i) Multiple choice questions from Prose and Poetry (3 + 2) [1 × 5 = 5 Marks]
   - (ii) Very short type questions from Prose and Poetry (2 + 3) [1 × 5 = 5 Marks]
   - (iii) Short questions from Prose and Poetry (1 + 1) [2 × 2 = 4 Marks]
   - (iv) Questions from Prose and Poetry (1 + 1) [3 × 2 = 6 Marks] (out of four (4) questions)
2. Writing skill: [40 Marks]
   - i. Questions from the Grammar text [10 Marks]
     - a) Krdanta [1 × 3 = 3 Marks]
     - b) Vakyarana [1 × 4 = 4 Marks]
     - c) Bhrama sansodhana [1 × 3 = 3 Marks]
   - ii. Translation of verse into Odia / English from Poetry text [4 × 1 = 4 Marks] (out of two verses)
   - iii. Translation of one passage into Odia / English from Prose text [6 × 1 = 6 Marks]
   - iv. Two questions from Poetry text [5 × 2 = 10 Marks]
   - v. Two questions from Prose text (out of four)[5 × 2 = 10 Marks]

3. Literary text[40 Marks]

i) Questions from text (Prose and Poetry) [10 Marks]
   a) Karaka-vibhakti [1 × 5 = 5 Marks]
   b)Prakrti-prataya [1 ×5 = 5 Marks]
ii) Explanation of a verse (Poetry) [6 × 1 = 6 Marks]
iii) Two short question from Poetry [4 × 2 = 8 Marks]
iv) One long question from Poetry [8 × 1 = 8 Marks]
v) One Long Question from prose [8 × 1 = 8 Marks]

N.B.: The questions may be answered in Sanskrit or Odia or English if not otherwise speci-fied.

SANSKRIT

(Elective)

SECOND YEAR

There shall be one paper carrying 100 marks.
The duration of Examination will be of three hours.

COURSE STRUCTURE

		Marks allotted
(a)	Reading skill	20
(b)	Writing skill	40
(C)	Literary text	40
		Total 100 Marks
Topics		**Classes required**
(a)	Drama	35
(b)	Poetry	25
(c)	Grammar and Translation	20
		Total 80 classes

PORTION TO BE STUDIED

(a) Drama - Suapnavasavadattam of Bhasa **25 Periods**

स्वप्नवासवदत्तम् (1to 5 Act) 6th Act to be deleated

(b) Poetry - Samskrtamadakini (Prathambhagah) **17 Periods**

संस्कृतमन्दाकिनी (पद्यभागः)

01. चाणक्यनीतिः - Canakyanitih (Verses 01 to 20) 21 to 24 to be deleted

02. रघुबंशम् - Raghuvamsam (Verses 01 to 15) 16 to 20 to be deleted

(c) Grammar **14 Periods**

01. Gramar from Drama Poetry

i. कारक-विभक्ति (Karaka - vibhakti)

ii. सन्धिविच्छेद - Sandhivichheda)

02. Topics from the Grammar text

(i) शब्दरुप (Sabdarupa) -देव, कवि, पति, , भ्रातृ, गच्छत्, भवत्,महत्, राजन्, गुपिन्,

(ii) स्त्रीलिङ्गं (Strilinga) - लता, मति, नदी, मातृ, विपद्

(iii) क्लीवलिङ्ग (Klivalinga) - फल, वारि, मधु, कर्मन्, , पयस्
(iv) सर्वनाम (Sarbanama) - तद्, , इदम्, सर्व, युष्मद्, अस्मद्
(v) संख्यावाचक (Samkhyavacaka) - एक, द्वि, त्रि.

03. धातुरूप (Dhaturupa) - भू, गम्, दृश्, कृ, पठ्, अस्, नी, पा, लभ्, दा, पूज्

04. स्त्रीप्रत्यय (Stripratyaya)

BOOKS RECOMMENDED :

1. संस्कृतमन्दाकिनी - Published by Odisha State Bureau of Text Book Preparation and Production
2. व्याकरणदर्पणः - Published by Odisha State Bureau of Text Book Preparation and Production
3. स्वप्नवासवदत्तम् - Published by Odisha State Bureau of Text Book Preparation and Production

QUESTIONS PATTERN AND DISTRIBUTION OF MARKS

SANKRIT (ELECTIVE)

SECOND YEAR

1. Reading skill : [20 Marks]

   (i) Multiple choice questions from Drama and Poetry (3 + 2) [1 × 5 = 5 Marks]
   (ii) Very short type questions from Drama and Poetry (2 + 3)[1 × 5 = 5 Marks]
   (iii) Short questions from Drama and Poetry (1 + 1) [2 × 2 = 4 Marks] (out of four (4) questions)
   (iv) Questions from Drama and Poetry (1 + 1) [3 × 2 = 6 Marks] (out of four (4) questions

2. Writing skill : [40 Marks]
   (i) Questions from the Grammar text [10 Marks]
      iii. Sabdarupa [1 × 4 = 4 Marks]
      iv. Dhaturupa [1 × 4 = 4 Marks]
      v. Stripratyaya [1 × 2 = 2 Marks]
   ii) Translation of verse into Odia / English from Drama and Poetry [4 × 1 = 4 Marks] (out of two verses)
   iii) Translation of unseen passage from Odia / English to Sanskrit[6 × 1 = 6 Marks]
   iv) Two questions from Drama (out of four) [5 × 2 = 10 Marks]
   v) Two questions from Poetry (out of four) [5 × 2 = 10 Marks]
3. Literary text[40 Marks]
   i) Questions from text (Drama and Poetry) [10 Marks]
      (a) Karaka-vibhakti [1 × 4 = 4 Marks]
      (b) Sandhi vichheda [1 × 6 = 6 Marks]
   (ii) One questions from Drama [4 × 1 = 4 Marks]
   iii) Explanation of a verse (Poetry) [6 × 1 = 6 Marks]
   (iv) One long question from Drama [10 × 1 = 10 Marks]
   (v) One long question from Poetry [10 × 1 = 10 Marks

N.B.: The questions may be answered in Sanskrit or Odia or English if not otherwise specified

Modified Syllabus for 2020-21 session

M.I.L. (Sanskrit)

FIRST YEAR

Total Classes - 56

There Shall be one Paper carrying 100 marks. The duration of examination will be of 3 (three)

hours

COURSE STRUCTURE

	Classes required	Marks allotted	
a)	Reading Skill	20	20
b)	Writing Skill	25	40
c)	Literary Text	35	40
	Total	80 Classes	100 Marks

PORTIONS TO BE STUIDED

a) Prose - Sanskrutaprabha (Gadyabhagah) 18 Periods

संस्कृतप्रभा-गद्यभाग:

The following prose pieces from the above mentioned book are to be studied

1. मनुमत्स्याख्यानम् (Manumatsyakhyanam)
2. चतुरशृगाल: (Chaturasrugalah)
3. जाबाल: सत्यकाम: (Jabalah Satyakamah)

b) Poetry - Samskrtaprabha (Podyabhagah) 20 Periods

संस्कृतप्रभा (पद्यभाग:)

The following poetry pieces from the above book are to be studied

1. सुभाषितावली (Subhasitavali)
2. वसन्त: (Vasantah)

c) Grammar from the Prose and Poetry

1) सन्धिविच्छेद Sandhi Viccheda
2) कारकविभक्ति (Karak Vibhakti)
3) प्रकृतिप्रत्यय (Prakrti Pratyaya)

d) Topics from the Grammar text (Grammar & Translation 14 Periods)

1) स्त्रीप्रत्यय Stripratyaya
2) एकपदीकरण Formation of single word from Stripratyaya

e) Translation and Comprehension (4 Periods)

1. Comprehension - Sanskrit Passage from the comprehension pasages of

संस्कृतप्रभा, Part – I (1 to 4) (5 to 8 to be deleted)

2. Translation into Odia/English from prose and Poetry, translation from Sanskrit to Odia/ English.

f) Writing Skill

The art of writing - Textual Explanation, Textual long questions.

Books Recommended

Sanskrtaprabha, Part - I - संस्कृतप्रभा - प्रथमोभाग:

Published by Odisha State Bureau of Textbook Preparation and Production.

Vyakarana - darpants - ब्याकरण दर्पण:

Published by Odisha State Bureau of Textbook Preparation and Production.

M.I.L. (Sanskrit)

FIRST YEAR

1. **Reading Skill -** **20 Marks**

i) Multiple choice questions from Prose & Poetry (3+2) 1 x 5 = 5 Marks

ii) Very short questions from Prose & Poetry (2 + 3) 1 x 5 = 5 Marks

iii) Short questions from Prose & Poetry (1 + 1) 2 x 2 = 4 Marks
(out of 04 questions)

iv) Two questions from prose & poetry (1+1) 3 x 2 = 6 Marks
(out of 4 questions)

2. Writing Skill

i) Very short questions from Grammar Text - 10 Marks

a. Stripratyaya - 1 x 5 = 5 Marks
b. Ekapadikarana - 1 x 5 = 5 Marks

ii) Translation of verse into Odia / English from Poetry Text - 5 x 2 =10 Marks (two out of 03 verses)

iii) Translation of one passage into Odia/English from Prose Text - 10 x 1 = 10 Marks

iv) Translation of an Unseen Sanskrit Passage to Odia/English from given Passage - 1 No.
10 x 1 = 10 Marks

3. Literary Text **40 Marks**

i) Grammar from Prose : (Sandhiviccheda) - 1 x 4 = 4 Marks

ii) Grammar from Poetry :
Karaka-Vibhakti - 1 x 3 = 3 Marks
Prakrati - Pratyaya - 1 x 3 = 3 Marks

iii) Two questions from Prose & Poetry (1+1)
6 x 2 = 12 Marks (with in 30 words) (out of 4 questions)

iv) Explanation of Verse from Poetry text (one)

08 x 1 = 08 Marks (out of two verses)

v) Comprehension (one passage) from text (1 - 4) 2 x 5 = 10 Marks

N.B. : Answer in Sanskrit are to be written either in Odia script or in Devanagari script.

M.I.L. (Sanskrit)

SECONDYEAR

(56) Periods

There shall be one paper carrying 100 Marks. The duration of Examination will be of three hours.

COURSE STRUCTURE

	Classes required	Marks allotted	
a)	Reading Skill	20	20
b)	Writing Skill	25	40
c)	Literary Text	35	40
	Total	80 Classes	100 Marks

PORTIONS TO BE STUIDED

a) Prose - Sanskrutaprabha (Gadyabhagah) 18 Periods

संस्कृतप्रभा - गद्यभाग:

The following prose pieces from the above mentioned book are to be studied

1. कपोतलुब्धककथा (Kapotalubdhakakatha)
2. गुणिगुणहीनविवेक: (Gunigunahinavivekah)
3. रामतपोवनाभिगमनम् (Ramatapovanabhigamanam)

b) Poetry - Samskrtaprabha (Podyabhagah) 20 Periods

संस्कृतप्रभा (पद्यभाग:)

The following poetry pieces from the above book are to be stuided

1. गीतासवरभम् (Gitasourabham)
2. रघुवंशम् (Raghuvamsam) 1 to 16 (17 to 30 to be deleated)

c) Grammar from the Prose and Poetry 14 Periods

1. कारकविभक्ति (Karak Vibhakti)
2. सन्धिविच्छेद Sandhi Viccheda

Topics from the Grammar text

1. शब्दरूप Sabdarupa (नर, फल, लता, मुनि, मति, वारि, नदी, पितृ, मातृ, गच्छत्, , तद्, अस्मद्, युष्मद्, द्वि, त्रि,)
2. धातुरूप Dhaturupa (भू, गम्, पठ्, कृ, अस्,)

3. स्त्रीप्रत्यय Stripratyaya

e) Translation and Comprehension . 4 Periods

1) Comprehension - Sanskrit Passage from the comprehension pasages of संस्कृतप्रभा, Part-II (9 to 12 passages to be studied) (13 to 16 to be deleted)

2) Translation into Odia/English from Prose and Poetry, Translation from Odia/English to Sanskrit.

f) Writing Skill

The art of writing - Textual Explanation, Textual long questions

Books Recommended

1) Sanskrtaprabha, Part - II - संस्कृतप्रभा - द्वितीयोभाग:

Published by Odisha State Bureau of Textbook Preparation and Production.

2) Vyakarana - darpants - ब्याकरण दर्पण:

Published by Odisha State Bureau of Textbook Preparation and Production.

M.I.L. (Sanskrit)

SECOND YEAR

1. **Reading Skill - 20 Marks**

i)	Multiple choice questions from Prose & Poetry (3+2)	1 x 5 = 5 Marks
ii)	Very short questions from Prose & Poetry (2 + 3)	1 x 5 = 5 Marks
iii)	Short questions from Prose & Poetry (1 + 1)	2 x 2 = 4 Marks (out of 4 questions)
iv)	Two questions from Prose & Poetry (1+1)	3 x 2 = 6 Marks (out of 4 questions)

2. Writing Skill 40 Marks

i) Very short questions from Grammar Text - 10 Marks

a. Sabdarupa - 1 x 4 = 4 Marks
b. Dhaturupa - 1 x 3 = 3 Marks
c. Stripratyaya - 1 x 3 = 3 Marks

ii) Translation of verse into Odia / English from Poetry Text - 5 x 2 = 10 Marks (out of 02 verses)

iii) Translation of pasage to Odia/English from Prose Text – 10 x 1 = 10 Marks

iv) Unseen Passage translation from Odia/English to Sanskrit - 10 Marks

3. Literary Text 40 Marks

i) Grammar from Prose/Poetry Text - 10 Marks

Karaka-Vibhakti - 2 x 3 = 6 Marks

Sandhi and Sandhi-Vicchheda - 1 x 4 = 4 Marks

ii) Explanation of Verse from Poetry text (one) 8 x 1 = 8 Marks

iii) Questions from Prose & Poetry (1+1)
6 x 2 = 12 Marks (out of 4 questions)

iv) Comprehension of passage from text (9 - 12) 2 x 5 = 10 Marks

N.B. : Answer in Sanskrit are to be written either in Odia script or in Devanagari script.

Revised Syllabus for the session 2020-21

STATISTICS

There shall be two Theory papers in Statistics, each of three hours duration, carrying 70 marks
in first year and 70 marks in second year and two practical papers carrying 30 marks in first
year and 30 marks in second year respectively, each of three hous duration.
The examination for paper- I and practical examinations will be held at the end of the first year
and examination for paper-II and practical examination will be held at the end of second year
respectively.

Pattern of Questions

Theory:

Group-A: Objective type questions

1. Multiple choice questions (Compulsory).
2. Very short type questions (Compulsory).

Group-B: Short answer type questions

1. 8 questions to be answered out of 12.

Group-C: Long answer type questions

1. 3 questions to be answered out of 5 questions.
2. 1 question will be set up from each unit.

Practical :

1. Solution of problems – 24 Marks
2. Record – 3 Marks
3. Viva-Voce – 3 Marks

DETAILED SYLLABUS

+2 FIRST YEAR SCIENCE

(TO BE COVERED IN FIRST YEAR CLASS)

Theory – 70 Marks
3 Hours Duration

Unit-I BASIC MATHEMATICS:

Fundamental Principle of Counting, Factorial n (n!). Permutation and Combination. Binomial

Theorem for positive Integral indices. General and Middle terms in Binomial Expansion, Simple Applications,

Unit-II PROBABILITY THEORY-I:

Definition of Probability:- Classical, Empirical and Axiomatic Approach, Sample Space and
events, Concepts of sets. Correspondence between sets and events. Probability by direct
enumeration. Laws of addition and multiplication, Conditional Probability and independence of events.

Unit-III PROBABILITY THEORY-II:

Concept of Random Variable. Discrete and Continuous random Variables and their probability
distribution. Mathematical expectation of random variables.
Addition and Multiplication laws of expectation. Variance of Sum of Random Variables.

Unit-IV STATISTICAL METHODS-I:

Definition. Scope and Limitations of Statistics. Collection of Data: Primary and Secondary Data. Classification of Data. Tabulation of Data: One-Way and Two-Way Tables. Presentation of Data: Diagrams-Simple. Multiple. Subdivided and percentage bar diagrams, pie diagrams, Graphs-Frequency curve. Frequency Polygon. Ogives and Histogram.

Unit-V STATISTICAL METHODS-II:

Frequency distributions. Measures of Central Tendency: Arithmetic Mean. Geometric Mean.
Harmonic Mean. Median and Mode. Quartiles. Measures of Dispersion:
Range. Inter-Quartile range. Quartile Deviation. Mean absolute deviation. Standard Deviation.
Coefficient of Variation and. Moments: Raw and Central moments of various
orders. Skewness and its different measures. Kurtosis and its measure based on moments.

PRACTICAL- 30 Marks

3 Hours Duration

The candidate is required to answer any four out of six questions to be set. Each question
carries six marks. The Practical Records should be maintained in blue/black ball pen only.

Diagrammatic Representation of Data : Simple, multiple, sub-divided and percentage bardiagrams, pie diagrams. Graphical Representation of data- Histogram. Frequency Polygon and Cumulative Frequency Curve. Arithmetic Mean. Median. Mode. Mean. Partition Values, Standard Deviation, mean absolute deviation. Coefficient of variation. moments, skewness & kurtosis.

Books Recommended:

1. Bureau's Higher Secondary (+2) Statistics, Part-I, Published by Odisha State Bureau of
Text Book Preparation and Production, Bhubaneswar.

+2 SECOND YEAR SCIENCE

(TO BE COVERED IN FIRST YEAR Class)

Theory – 70 Marks

3 Hours Duration

Unit-I STATISTICAL METHODS-II:

Bi-variate Frequency Distribution, Simple Correlation, Computation of Correlation Coefficient

and its interpretation using Probable Error. Rank Correlation (including ties). Linear Regression, Regression Coefficients and their Properties.

Unit-II PROBABILITY DISTRIBUTIONS:

Bernoulli. Binomial and Poisson Distributions with properties and applications (derivation of

mean and variance only). Normal distribution, its properties and applications (mathematical

proofs excluded).

Unit-III SAMPLING METHODS:

Finite Population Sampling : Sample. Population. Sampling units, sampling frame. Principal

Steps in sample Surveys. Census versus Sample Survey. Idea about questionnaire and schedule, sampling and non-sampling errors. Idea on simple random sampling with and without replacement. Methods of Drawing Random Samples; Lottery Method and Random Number table Method. Estimation of Population mean and Variance.

Unit-IV TIME SERIES:

Definition, uses and components of Time Series, Measurement of trend: Freehand Semi-

Average. Moving Average and Least Squares Method

Unit-V INDEX NUMBERS:

Need meaning and uses of Index Numbers, Important steps in the construction of index number. Problems in the selection of items. Idea of base year and Current Year. Average System of Weighing. Weighted index number: Laspeyre’s, Paasche’s and Fisher’s ideal index numbers. Unit. Time Reversal, Factor Reversal and Circular Tests. Base shifting splicing and deflating of index, numbers.

PRACTICAL – 30 Marks

3 Hours Duration

The candidate is required to answer any four out of six questions to be set. Each question

carries six marks. The Practical Records should be maintained in blue/black ball pen only.

Measurement of trend by moving averages and by Least Square (Straight line only) method.

. Computation of index numbers by weighted average of price

relatives: Laspeyre's Paasche's and Fisher's Formula: Coefficient of Correlation, Coefficient of Regression.

Books Recommended:

1. Bureau's Higher Secondary (+2) Statistics, Part-II, Published by Odisha State Bureau

of Text Book Preparation and Production, Bhubaneswar.