HARIHARANANDA BALSAHRAM, ARUA, KENDRAPARA, PEDAGOGICAL PLAN FOR THE SESSION-2019-20 (Class-XII)

Subject: English							
Sl No & Month	**Name & Details of the book**	**Name & Details of the lesson**	**No of Periods**	**Learning Objective**	**Learning Outcome**	**TLM Used**	**Pedagogical Method and Assessment**
1) Apr	Intro to syllabus	-	2	Introduction to the syllabus		-	-
	Flamingo	The last lesion	5	• Importance of mother tongue • Importance of classroom teaching	• Meaning of the text • New words • Importance of mother tongue • Importance of teacher-student relationship	Textbook, chalk , blackboard, pictures given in the book, digital board	Interaction discussion ,lecture etc Assessment: Class test
		Lost spring	5	Social deprivation and injustice Agony of so-called refugee	Meaning of the text New words Social injustice and inequality Problem of child labour	Textbook, chalk , blackboard, pictures given in the book, digital board	Interaction discussion ,lecture etc Assessment: Class test
	Flamingo	My mother at sixty six	3	To understand old age problems Mother-daughter relationship	Meaning of the poem New words Mother-daughter relationship Human values Old age problems	Textbook, chalk , blackboard, pictures given in the book, digital board	Classwork, practice Assessment: Class test
	Vistas	The tiger king	4	Importance of preserving nature Humour in the story	Meaning of the text New word meaning Satire	Blackboard chalk , duster	Class work, writing Assessment: Class test

HARIHARANANDA BALSAHRAM, ARUA, KENDRAPARA, PEDAGOGICAL PLAN FOR THE SESSION-2019-20 (Class-XII)

	ASL	-	4	Speaking and listening	Skill of speaking and listening	Blackboard chalk , duster Digital board	Class work, writing Assessment: Class test
2) May	Reading	R1- Reading comprehension	4	Understanding reading comprehension	Skill of solving reading comprehension	Textbook, chalk , blackboard, pictures given in the book, digital board	Interaction discussion ,lecture etc Assessment: Class test
	Writing	W1- Notice	6	Method of notice writing	Skill of notice writing	Textbook, chalk, blackboard, pictures given in the book, digital board	Interaction discussion, lecture etc Assessment: Class test
	Flamingo	Deep water	4	Understanding the text Importance of conquering the fear	Meaning of the text New words Learning of how to conquer fear Character of the Protagonist	Textbook, chalk , blackboard, pictures given in the book, digital board	Interaction discussion ,lecture etc Assessment: Class test
		An elementary school classroom in a slum	3	Social deprivation and injustice Exploitation of children of slum	Meaning of the poem New words and phrases Literary devices used in the poem Idea of social justice and equality	Textbook, chalk , blackboard, pictures given in the book, digital board	Interaction discussion ,lecture etc Assessment: Class test

HARIHARANANDA BALSAHRAM, ARUA, KENDRAPARA, PEDAGOGICAL PLAN FOR THE SESSION-2019-20 (Class-XII)

	Vistas	The enemy	5	Concept of humanism Characters of the text	Meaning of the text New word meaning Brotherhood and humanity and their importance	Textbook, chalk , blackboard, pictures given in the book, digital board	Interaction discussion ,lecture etc Assessment: Class test
	ASL	-	5	Speaking and listening	Speaking and listening skill	Blackboard chalk , duster Digital board	Class work, writing Assessment: Class test
3) July	Reading	R1- Note making	4	Method of note making and summarising	Skill of note making and summarising	Blackboard chalk , duster Digital board	Class work, writing Assessment: Class test
	Writing	Advertisement	5	Method of Advertisement writing	Skill of writing of an advertisement	Blackboard chalk , duster Digital board	Class work, writing Assessment: Class test
	Flamingo	The Rattrap	4	Philosophy of the text Characters and their predicament	Meaning of the text New words Main character and its expansion Philosophy and values catered in the text	Textbook, chalk , blackboard, pictures given in the book, digital board	Interaction discussion ,lecture etc Assessment: Class test
	Vistas	Should wizard…	4	Fun in the story Use of presence of mind Child psychology regarding concept of beauty	Meaning of the story Word meaning Humour in the story Textual grammar	Textbook, chalk , blackboard, pictures given in the book, digital board	Interaction discussion ,lecture etc Assessment: Class test

HARIHARANANDA BALSAHRAM, ARUA, KENDRAPARA, PEDAGOGICAL PLAN FOR THE SESSION-2019-20 (Class-XII)

4) August	Reading	Comprehension	3	Reading comprehension	Skill of reading comprehension	Blackboard chalk , duster Digital board	Class work, writing Assessment: Class test
	Writing	Complaint letter	3	Method of writing complaint letter	Skill of writing letter	Blackboard chalk , duster Digital board	Class work, writing Assessment: Class test
	Flamingo	Indigo	4	Gandhian ideology and philosophy Peasant revolt Gandhian Values	Meaning of the text New words Gandhian ideology and philosophy Peasant revolt Gandhian Values	Textbook, chalk , blackboard, pictures given in the book, digital board	Interaction discussion ,lecture etc Assessment: Class test
		A thing of beauty	3	Concept of beauty Nature as represented by Romantics	Meaning of the poem New words Literary devices used in the poem Concept of nature worship	Textbook, chalk , blackboard, pictures given in the book, digital board	Interaction discussion ,lecture etc Assessment: Class test
	Vistas	On the face of it	4	Meaning of the story Characters of the story	Meaning of the text New words Characters Human values	Textbook, chalk , blackboard, pictures given in the book, digital board	Interaction discussion ,lecture etc Assessment: Class test
5) September	Writing	Poster	5	Method of poster making	Skill of poster making	Blackboard chalk , duster	Class work, writing Assessment: Class test

HARIHARANANDA BALSAHRAM, ARUA, KENDRAPARA, PEDAGOGICAL PLAN FOR THE SESSION-2019-20 (Class-XII)

	Flamingo	Going places	4	Study of adolescent mind Characters and their ambition Reality and their predicament	Meaning of the text New words Psychology of the main character and correlation with our life Human values Complexities of modern life	Textbook, chalk , blackboard, pictures given in the book, digital board	Interaction discussion ,lecture etc Assessment: Class test
		Aunt Jennifer's Tiger	2	Meaning of the poem Concept of preservation of the nature	Meaning of the poem New words Literary devices used in the poem Concept of protection of nature	Textbook, chalk , blackboard, pictures given in the book, digital board	Interaction discussion ,lecture etc Assessment: Class test
	Vistas	Evans tries an O level	4	Importance of study of new language Meaning of the text	Meaning of the text New words Character and his hard work	Textbook, chalk, blackboard, pictures given in the book, digital board	Interaction discussion, lecture etc Assessment: Class test
6) October	Vistas	Memories of childhood	4	Importance of childhood memory and its teaching in our life	Meaning of the text Word meaning Importance of childhood memories Significance of memories in life	Textbook, chalk , blackboard, pictures given in the book, digital board	Interaction discussion ,lecture etc Assessment: Class test
	Writing	Invitation reply	2	Method of invitation and reply writing	Skill of invitation and reply writing	Blackboard chalk , duster	Class work, writing Assessment: Class test
	-	Writing speech	3	Method of speech writing	Skill of speech writing	Blackboard chalk , duster	Class work, writing Assessment: Class test

HARIHARANANDA BALSAHRAM, ARUA, KENDRAPARA, PEDAGOGICAL PLAN FOR THE SESSION-2019-20 (Class-XII)

7) November	ASL	-	5	Speaking and listening	Speaking and listening skill	Blackboard chalk , duster, digital board	Class work, writing Assessment: Class test
	Writing	7 debate	8	Method of debate writing	Skill of debate writing	Blackboard chalk , duster	Class work, writing Assessment: Class test
	Writing	Letter to editor & ending	7	Method of letter writing	Skill of letter writing	Blackboard chalk , duster	Class work, writing Assessment: Class test

HARIHARANANDA BALSAHRAM, ARUA, KENDRAPARA, PEDAGOGICAL PLAN FOR THE SESSION-2019-20 (Class-XII)

Subject: Physics						
Lesson no &Name	**No of Periods**	**Objectives (Concepts and Skills)**	**Learning Outcomes**	**Teaching Aids**	**Pedagogy/Teaching Methodology**	**Assessment**
Chapter–1: Electric Charges and Fields	11 Practical (2)	➢ Electric Charges ➢ Conservation of charge ➢ Coulomb's law-force between two point charges ➢ forces between multiple charges; superposition principle and continuous charge distribution. ➢ Electric field, electric field due to a point charge ➢ electric field lines, electric dipole, electric ➢ field due to a dipole, torque on a dipole in uniform electric field. ➢ Electric flux, statement of Gauss's theorem and its applications to find field due to infinitely ➢ long straight wire ➢ uniformly charged infinite plane sheet and uniformly charged thin spherical ➢ shell (field inside and outside).	Make it sure that the student learns the concepts given: ➢ The brief idea of electric charge and its properties ➢ Writing formula for coulomb's force, electric field . ➢ Identification of various types of phenomena due to charge ➢ Identifying the electric lines of force and electric field ➢ applications	➢ Text Book ➢ Reference book ➢ Models ➢ Graph ➢ Pictures ➢ and other TLM if any	Activating prior knowledge by random questioning ➢ Introducing the topic to be taught after getting the expected response from the students. ➢ Developing hypothesis by (a) Brain storming, (b) Lecture , (c) Discussion and (d) In Text Question	➢ Class work ➢ Home work ➢ Group Discussion ➢ MCQ Texts ➢ Verbal Text ➢ Project Work ➢ Unit Text
Chapter–2: Electrostatic Potential and Capacitance	11Practical(2)	➢ Electric potential ➢ potential difference ➢ electric potential due to a point charge, a dipole and system of charges; equipotential surfaces ➢ electrical potential energy of a system of two point charges and of electric dipole in an electrostatic field. ➢ Conductors and insulators, free	Make it sure that the student learns the concepts given: ➢ The brief idea of electric potential ➢ Writing equation for potential. ➢ Identification of various types of charges(free charges	➢ Text Book ➢ Reference book ➢ Models ➢ Graph ➢ Pictures ➢ and other TLM if	Activating prior knowledge by random questioning ➢ Introducing the topic to be taught after getting the expected response from the students.	➢ Class work ➢ Home work ➢ Group Discussion ➢ MCQ Texts ➢ Verbal Text ➢ Project Work ➢ Unit Text

HARIHARANANDA BALSAHRAM, ARUA, KENDRAPARA, PEDAGOGICAL PLAN FOR THE SESSION-2019-20 (Class-XII)

		charges and bound charges inside a conductor. Dielectrics and electric polarization, capacitors and capacitance ➢ combination of capacitors in series and in parallel ➢ capacitance of a parallel plate capacitor with and without dielectric medium between the plates ➢ energy stored in a capacitor..	and bound charges) ➢ Identifying the polarization ➢ applications	any	➢ Developing hypothesis by (a) Brain storming, (b) Lecture , (c) Discussion and (d) In Text Question	
Chapter–3: Current Electricity	20Practical(2)	➢ Electric current ➢ flow of electric charges in a metallic conductor ➢ drift velocity, mobility and ➢ their relation with electric current ➢ Ohm's law, electrical resistance, V-I characteristics (linear and non-linear), electrical energy and power ➢ electrical resistivity and conductivity, Carbon resistors, colour code for carbon resistors ➢ series and parallel combinations of resistors ➢ temperature dependence of resistance. ➢ Internal resistance of a cell ➢ potential difference and emf of a cell, combination of cells in ➢ series and in parallel ➢ Kirchhoff's laws and simple applications ➢ Wheatstone bridge, metre bridge. ➢ Potentiometer - principle and its	Make it sure that the student learns the concepts given: ➢ The brief idea of electric current ➢ Writing equation for electric current ➢ Verification of Ohm's law ➢ Identifying the ohmic and non ohmic conductor ➢ applications	➢ Text Book ➢ Reference book ➢ Models ➢ Graph ➢ Pictures ➢ and other TLM if any	Activating prior knowledge by random questioning ➢ Introducing the topic to be taught after getting the expected response from the students. ➢ Developing hypothesis by (a) Brain storming, (b) Lecture , (c) Discussion and (d) In Text Question	➢ Class work ➢ Home work ➢ Group Discussion ➢ MCQ Texts ➢ Verbal Text ➢ Project Work ➢ Unit Text

HARIHARANANDA BALSAHRAM, ARUA, KENDRAPARA, PEDAGOGICAL PLAN FOR THE SESSION-2019-20 (Class-XII)

		applications to measure potential difference and for comparing EMF of two cell ➢ measurement of internal resistance of a cell.				
Chapter–4: Moving Charges and Magetism	12 Practical (2)	➢ Concept of magnetic field ➢ Oersted's experiment. ➢ Biot - Savart law and its application to current carrying circular loop. ➢ Ampere's law and its applications to infinitely long straight wire. Straight and Toroidal solenoids ➢ (only qualitative treatment) ➢ force on a moving charge in uniform magnetic and electric fields, Cyclotron. ➢ Force on a current-carrying conductor in a uniform magnetic field, force between two parallel current-carrying conductors-definition of ampere ➢ torque experienced by a current loop in uniform magnetic field ➢ moving coil galvanometer-its current sensitivity and conversion to ammeter and voltmeter.	Make it sure that the student learns the concepts given: ➢ The brief idea of magnetic field ➢ Writing the magnitude of magnetic field and strength ➢ Derivation of force of a moving charge in magnetic field ➢ applications	➢ Text Book ➢ Reference book ➢ Models ➢ Graph ➢ Pictures ➢ and other TLM if any	Activating prior knowledge by random questioning ➢ Introducing the topic to be taught after getting the expected response from the students. ➢ Developing hypothesis by (a) Brain storming, (b) Lecture , (c) Discussion and (d) In Text Question	➢ Class work ➢ Home work ➢ Group Discussion ➢ MCQ Texts ➢ Verbal Text ➢ Project Work ➢ Unit Text
Chapter–5: Magnetism and Matter	10 Practical (2)	➢ Current loop as a magnetic dipole and its magnetic dipole moment, magnetic dipole moment of a revolving electron, magnetic field intensity due to a magnetic dipole (bar magnet) along its axis and perpendicular to its axis ➢ torque on a magnetic dipole (bar	Make it sure that the student learns the concepts given: ➢ The brief idea of electric dipole ➢ Writing formula for the magnetic strength of a dipole.	➢ Text Book ➢ Reference book ➢ Models ➢ Graph ➢ Pictures ➢ and	Activating prior knowledge by random questioning ➢ Introducing the topic to be taught after getting the expected	➢ Class work ➢ Home work ➢ Group Discussion ➢ MCQ Texts ➢ Verbal Text ➢ Project Work ➢ Map Study

HARIHARANANDA BALSAHRAM, ARUA, KENDRAPARA, PEDAGOGICAL PLAN FOR THE SESSION-2019-20 (Class-XII)

		magnet) in a uniform magnetic field ➢ bar magnet as an equivalent solenoid, magnetic field lines ➢ earth's magnetic field and magnetic elements. ➢ Para-, dia- and ferro - magnetic substances, with examples. Electromagnets and factors affecting their strengths ➢ permanent magnets.	➢ Identification of para, ferro and dia magnetic materials ➢ Identifying the factors on which they depends ➢ applications	other TLM if any	response from the students. ➢ Developing hypothesis by (a) Brain storming, (b) Lecture , (c) Discussion and (d) In Text Question	➢ Unit Text
Chapter–6: Electromagnetic Induction	8 Practical (2)	➢ Electromagnetic induction ➢ Faraday's laws ➢ induced EMF and current ➢ Lenz's Law ➢ Eddy currents. ➢ Self and mutual induction.	Make it sure that the student learns the concepts given: ➢ The brief idea of electromagnetic induction ➢ Writing equation for self and mutual induction. ➢ Identification of eddy currents ➢ applications	➢ Text Book ➢ Reference book ➢ Models ➢ Graph ➢ Pictures ➢ and other TLM if any	Activating prior knowledge by random questioning ➢ Introducing the topic to be taught after getting the expected response from the students. ➢ Developing hypothesis by (a) Brain storming, (b) Lecture , (c) Discussion and (d) In Text Question	➢ Class work ➢ Home work ➢ Group Discussion ➢ MCQ Texts ➢ Verbal Text ➢ Project Work ➢ Unit Text
Chapter–7: Alternating Current	12 Practical (2)	➢ Alternating currents ➢ peak and RMS value of alternating current/voltage ➢ reactance and impedance ➢ LC oscillations (qualitative	Make it sure that the student learns the concepts given: ➢ The brief idea of alternating currents	➢ Text Book ➢ Reference book ➢ Models	Activating prior knowledge by random questioning ➢ Introducing the topic to be taught after	➢ Class work ➢ Home work ➢ Group Discussion ➢ MCQ Texts

HARIHARANANDA BALSAHRAM, ARUA, KENDRAPARA, PEDAGOGICAL PLAN FOR THE SESSION-2019-20 (Class-XII)

		treatment only) ➢ LCR series circuit, resonance ➢ power in AC circuits ➢ wattles current. ➢ AC generator and transformer	➢ Writing equation for the peak value of alternating currents. ➢ Identification of D.C and A.C current ➢ Identifying the LCR series ➢ application	➢ Graph ➢ Pictures ➢ and other TLM if any	getting the expected response from the students. ➢ Developing hypothesis by (a) Brain storming, (b) Lecture , (c) Discussion and (d) In Text Question	➢ Verbal Text ➢ Project Work ➢ Unit Text
Chapter–8: Electromagnetic Waves	4 Practical (2)	➢ Basic idea of displacement current Electromagnetic waves, their characteristics, their Transverse nature (qualitative ideas only). ➢ Electromagnetic spectrum (radio waves, microwaves, infrared, visible, ultraviolet, X-rays, gamma rays) including elementary facts about their uses.	Make it sure that the student learns the concepts given: ➢ The brief idea of electromagnetic waves ➢ Writing equation for the displacement current. ➢ Identification of various types of waves ➢ Study about the electromagnetic spectrum, microwaves, infrared etc ➢ application	➢ Text Book ➢ Reference book ➢ Models ➢ Graph ➢ Pictures ➢ and other TLM if any	Activating prior knowledge by random questioning ➢ Introducing the topic to be taught after getting the expected response from the students. ➢ Developing hypothesis by (a) Brain storming, (b) Lecture , (c) Discussion and (d) In Text Question	➢ Class work ➢ Home work ➢ Group Discussion ➢ MCQ Texts ➢ Verbal Text ➢ Project Work ➢ Unit Text
Chapter–9: Ray Optics and Optical Instruments **Ray Optics:**	13 Practical (2)	➢ Reflection of light ➢ spherical mirror ➢ mirror formula ➢ refraction of light	Make it sure that the student learns the concepts given: ➢ The brief idea of reflection of light	➢ Text Book ➢ Reference book ➢ Models	Activating prior knowledge by random questioning ➢ Introducing the topic to be	➢ Class work ➢ Home work ➢ Group Discussion

HARIHARANANDA BALSAHRAM, ARUA, KENDRAPARA, PEDAGOGICAL PLAN FOR THE SESSION-2019-20 (Class-XII)

		➢ total internal reflection and its applications ➢ optical fibres ➢ refraction at spherical surfaces ➢ lenses ➢ thin lens formula ➢ lens maker's formula ➢ magnification ➢ power of a lens ➢ combination of thin lenses in contact, combination of a lens and a mirror, refraction and dispersion of light through a prism. ➢ Scattering of light - blue colour of sky and reddish appearance of the sun at sunrise and sunset. ➢ Optical instruments: Microscopes and astronomical telescopes (reflecting and refracting) and their magnifying powers.	➢ Writing formula for mirror and lens. ➢ Image formation for different mirror and lens ➢ Identifying the physical phenomena due to scattering of light ➢ application	➢ Graph ➢ Pictures ➢ and other TLM if any	taught after getting the expected response from the students. ➢ Developing hypothesis by (a) Brain storming, (b) Lecture , (c) Discussion and (d) In Text Question	➢ MCQ Texts ➢ Verbal Text ➢ Project Work ➢ Unit Text
Chapter–10: Wave Optics	12 Practical (2)	➢ Wave front and Huygen's principle, reflection and refraction of plane wave at a plane surface using wave fronts ➢ Proof of laws of reflection and refraction using Huygen'sprinciple ➢ Interference ➢ Young's double slit experiment and expression for fringe width ➢ coherent sources and sustained interference of light ➢ diffraction due to a single slit, width of central maximum ➢ resolving power of microscope and	Make it sure that the student learns the concepts given: ➢ The brief idea of wave front ➢ Proofs of laws of reflection and refraction ➢ Young's double slit experiment ➢ applications	➢ Text Book ➢ Referenc e book ➢ Models ➢ Graph ➢ Pictures ➢ and other TLM if any	Activating prior knowledge by random questioning ➢ Introducing the topic to be taught after getting the expected response from the students. ➢ Developing hypothesis by (a) Brain storming, (b) Lecture ,	➢ Class work ➢ Home work ➢ Group Discussion ➢ MCQ Texts ➢ Verbal Text ➢ Project Work ➢ Unit Text

HARIHARANANDA BALSAHRAM, ARUA, KENDRAPARA, PEDAGOGICAL PLAN FOR THE SESSION-2019-20 (Class-XII)

		astronomical telescope ➢ polarisation ➢ plane polarised light ➢ Brewster's law ➢ uses of plane polarised light and Polaroids			(c) Discussion and (d) In Text Question	
Chapter–11: Dual Nature of Radiation and Matter	8 Practical (2)	➢ Dual nature of radiation ➢ Photoelectric effect ➢ Hertz and Lenard's observations; Einstein's photoelectric equation-particle nature of light. ➢ Matter waves-wave nature of particles, de-Broglie relation ➢ Davisson-Germer experiment (experimental details should be omitted; only conclusion should be explained).	Make it sure that the student learns the concepts given: ➢ The brief idea of dual nature of radiation ➢ Writing equation foe photoelectric effect ➢ Identification of various types of physical phenomena due to photoelectric effect ➢ applications	➢ Text Book ➢ Reference book ➢ Models ➢ Graph ➢ Pictures ➢ and other TLM if any	Activating prior knowledge by random questioning ➢ Introducing the topic to be taught after getting the expected response from the students. ➢ Developing hypothesis by (a) Brain storming, (b) Lecture , (c) Discussion and (d) In Text Question	➢ Class work ➢ Home work ➢ Group Discussion ➢ MCQ Texts ➢ Verbal Text ➢ Project Work ➢ Unit Text
Chapter–12: Atoms	6 Practical (2)	➢ Alpha-particle scattering experiment; Rutherford's model of atom ➢ Bohr model ➢ energy levels ➢ hydrogen spectrum.	Make it sure that the student learns the concepts given: ➢ The brief idea of Alfa particle scattering ➢ Discussion of Bohr's model and hydrogen spectrum ➢ application	➢ Text Book ➢ Reference book ➢ Models ➢ Graph ➢ Pictures ➢ and other TLM if	Activating prior knowledge by random questioning ➢ Introducing the topic to be taught after getting the expected response from the students.	➢ Class work ➢ Home work ➢ Group Discussion ➢ MCQ Texts ➢ Verbal Text ➢ Project Work ➢ Unit Text

HARIHARANANDA BALSAHRAM, ARUA, KENDRAPARA, PEDAGOGICAL PLAN FOR THE SESSION-2019-20 (Class-XII)

				any	➢ Developing hypothesis by (a) Brain storming, (b) Lecture , (c) Discussion and (d) In Text Question	
Chapter–13: Nuclei	8 Practical (2)	➢ Composition and size of nucleus ➢ Radioactivity ➢ alpha, beta and gamma particles/rays and their properties ➢ radioactive decay law. ➢ Mass-energy relation, mass defect; binding energy per nucleon and its variation with mass number ➢ nuclear fission ➢ nuclear fusion.	Make it sure that the student learns the concepts given: ➢ The brief idea of composition and size of nucleus. ➢ Alpha,beta and gamma rays. ➢ Identification of various type of nuclear processes ➢ application	➢ Text Book ➢ Reference book ➢ Models ➢ Graph ➢ Pictures ➢ and other TLM if any	Activating prior knowledge by random questioning ➢ Introducing the topic to be taught after getting the expected response from the students. ➢ Developing hypothesis by (a) Brain storming, (b) Lecture , (c) Discussion and (d) In Text Question	➢ Class work ➢ Home work ➢ Group Discussion ➢ MCQ Texts ➢ Verbal Text ➢ Project Work ➢ Unit Text
Chapter–14: Semiconductor Electronics: Materials, Devices and Simple Circuits	15 Practical (2)	➢ Energy bands in conductors, semiconductors and insulators (qualitative ideas only) ➢ Semiconductor diode - I-V characteristics in forward and reverse bias ➢ diode as a rectifier; Special purpose p-n junction diodes: LED ➢ photodiode, solar cell and Zener	Make it sure that the student learns the concepts given: ➢ The brief idea of semiconductor and its characteristic. ➢ Characteristic of transistor ➢ Identification of	➢ Text Book ➢ Reference book ➢ Models ➢ Graph ➢ Pictures ➢ and	Activating prior knowledge by random questioning ➢ Introducing the topic to be taught after getting the expected response from	➢ Class work ➢ Home work ➢ Group Discussion ➢ MCQ Texts ➢ Verbal Text ➢ Project Work ➢ Unit Text

HARIHARANANDA BALSAHRAM, ARUA, KENDRAPARA, PEDAGOGICAL PLAN FOR THE SESSION-2019-20 (Class-XII)

		diode and their characteristics ➢ zener diode as a voltage regulator. ➢ Junction transistor ➢ transistor action, characteristics of a transistor and transistor as an amplifier (common emitter configuration) ➢ basic idea of analog and digital signals, Logic gates (OR, AND, NOT, NAND and NOR).	➢ OR,AND,NOT,NAND and NOR ➢ application	other TLM if any	the students. ➢ Developing hypothesis by (a) Brain storming, (b) Lecture , (c) Discussion and (d) In Text Question	
Chapter–15: Communication Systems	10 Practical (2)	➢ Elements of a communication system (block diagram only) ➢ bandwidth of signals (speech, TV and digital data) ➢ bandwidth of transmission medium. Propagation of electromagnetic waves in the atmosphere ➢ sky and space wave propagation, satellite communication. ➢ Need for modulation ➢ amplitude modulation and frequency modulation ➢ advantages of frequency modulation over amplitude modulation ➢ Basic ideas about internet ➢ mobile telephony and global positioning system (GPS)	Make it sure that the student learns the concepts given: ➢ The brief idea of elements of communication system ➢ Types of signals. ➢ Sky and space communication ➢ application	➢ Text Book ➢ Reference book ➢ Model ➢ Graph ➢ Pictures ➢ and other TLM if any	Activating prior knowledge by random questioning ➢ Introducing the topic to be taught after getting the expected response from the students. ➢ Developing hypothesis by (a) Brain storming, (b) Lecture , (c) Discussion and (d) In Text Question	➢ Class work ➢ Home work ➢ Group Discussion ➢ MCQ Texts ➢ Verbal Text ➢ Project Work ➢ Unit Text

HARIHARANANDA BALSAHRAM, ARUA, KENDRAPARA, PEDAGOGICAL PLAN FOR THE SESSION-2019-20 (Class-XII)

Subject- Chemistry						
Lesson no and name	No of periods	**Objective (Concepts and skills)**	**Learning Outcomes**	**Instructional Tools/ References**	**Pedagogy**	**Activity/Assignment/ Project/ Assessment**
Chapter-1 solution	11	1.Concept on Types of solutions, 2.Calculation of expression of concentration of solutions of solids in liquids, solubility of gases in liquids, solid solutions, 3.Concept on colligative properties - relative lowering of vapour pressure, Raoult's law, elevation of boiling point, depression of freezing point, osmotic pressure, 4.Concept on determination of molecular masses using colligative properties, abnormal molecular mass, Van't Hoff factor.	Make it sure that the student learns the concepts given: 1. The brief idea of various types of solution. 2. Identification of various application regarding solution. 3. Identifying the molecular mass by using different method.	In addition to general teaching tools including blackboard and chalk, etc, the teacher will use demonstration method showing varrious types of solution and dissolving capacity of gasses in liquids. Text Book: NCERT Reference: Chemistry books by pradeep.	1. Activating prior knowledge by random questioning 2. Introducing the topic to be taught after getting the expected response from the students. 3. Developing hypothesis by (a) Brain storming, (b) Lecture, (c)Discussion and (d)In Text Questions	1 . The teacher will give Home Assignments and the areas of assessment will be Content of Knowledge, Presentation, Correctness, Time management and Thinking skills 2. Divide the students in the class in four groups and ask them to give examples of different types of reactions, 3. Remind the students about the physical and chemical changes. 4. Group Discussion related to corrosion and rusting. 5. In Text Questions
Chapter-2 electrochemistry	15	1.Concept on Redox reactions. 2.Idea about the conductance and its varriation with concentration. 3.Concept on dry cell-electrolytic cells and Galvanic cells, fuel cells, corrosion. 4.Concept on free energy.	Make it sure that the student learns the concepts given: 1. The brief idea of various elecrochemical reaction. 2. Knowing the application regarding varrious cell. 3. Identifying reactivity of electrolytic reaction.	In addition to general teaching tools including blackboard and chalk, etc, the teacher will use demonstration method showing varrious cell includinf electrolytic galvanic cell. Text Book: NCERT Reference: Chemistry books by pradeep.	1. Activating prior knowledge by random questioning 2. Introducing the topic to be taught after getting the expected response from the students. 3. Developing hypothesis by (a) Brain storming, (b) Lecture, (c)Discussion and (d)In Text Questions	1 . The teacher will give Home Assignments and the areas of assessment will be Content of Knowledge, Presentation, Correctness, Time management and Thinking skills 2. Divide the students in the class in four groups and ask them to give examples of different types of reactions, 3. Remind the students about the physical and chemical changes. 4. Group Discussion related to corrosion and rusting. 5. In Text Questions

HARIHARANANDA BALSAHRAM, ARUA, KENDRAPARA, PEDAGOGICAL PLAN FOR THE SESSION-2019-20 (Class-XII)

Chapter-3 chemical kinetics	8	1.Concept on Rate of a reaction (Average and instantaneous), 2.Idea about factors affecting rate of reaction: concentration, temperature, catalyst; order and molecularity of a reaction. 3. concept of collision theory (elementary idea, no mathematical treatment). Activation energy, Arrhenius equation.	Make it sure that the student learns the concepts given: 1. The brief idea of various order of reaction. 2. Knowing the application of rate of reaction. 3. Identifying reactivity of reacting molecule.	In addition to general teaching tools including blackboard and chalk, etc, the teacher will use demonstration method showing reactivity and order of reaction. Text Book: NCERT Reference: Chemistry books by pradeep.	1. Activating prior knowledge by random questioning 2. Introducing the topic to be taught after getting the expected response from the students. 3. Developing hypothesis by (a) Brain storming, (b) Lecture, (c)Discussion and (d)In Text Questions	1 . The teacher will give Home Assignments and the areas of assessment will be Content of Knowledge, Presentation, Correctness, Time management and Thinking skills 2. Divide the students in the class in four groups and ask them to give examples of different order of reactions and also rate of reaction. 3. Remind the students about therate of reaction. 4. Group Discussion related to kinetic of reaction. 5. In Text Questions
Chapter-4 surface chemistry	8	1.Concept of Adsorption - physisorption and chemisorption. 2.Theory about factors affecting adsorption of gases on solids. 3.Concept on catalysis, homogenous and heterogenous activity and selectivity. 4.Idea about colloids and suspension; lyophilic, lyophobic multi-molecular and macromolecular colloids. 5.properties of colloids; Tyndall effect, Brownian movement, electrophoresis, coagulation, emulsion - types of emulsions.	Make it sure that the student learns the concepts given: 1. The brief idea of adsorption. 2. Knowing the application regarding catalysis. 3. Identifying reactivity of enzyme catalysis and varrious properties of colloid.	In addition to general teaching tools including blackboard and chalk, etc, the teacher will use demonstration method showing tyndal effect,lyophilic and lyophobic,brownian moment. Text Book: NCERT Reference: Chemistry books by pradeep.	1. Activating prior knowledge by random questioning 2. Introducing the topic to be taught after getting the expected response from the students. 3. Developing hypothesis by (a) Brain storming, (b) Lecture, (c)Discussion and (d)In Text Questions	1 . The teacher will give Home Assignments and the areas of assessment will be Content of Knowledge, Presentation, Correctness, Time management and Thinking skills 2. Divide the students in the class in four groups and ask them to give examples of different types of reactions, 3. Remind the students about the properties of catallysis,colloid and suspension. 4. Group Discussion related adsorption of gasses. 5. In Text Questions

HARIHARANANDA BALSAHRAM, ARUA, KENDRAPARA, PEDAGOGICAL PLAN FOR THE SESSION-2019-20 (Class-XII)

Chapter-5 General principle and isolation of elements	9	1.Concept on varrious processe - concentration, oxidation, reduction by electrolytic method and refining; 2.occurrence and principles of extraction of aluminium, copper, zinc and iron	Make it sure that the student learns the concepts given: 1. The brief idea of various processes of extraction. 2. Knowing the application regarding its properties. 3. Identifying reactivity of metallurgical elements.	In addition to general teaching tools including blackboard and chalk, etc, the teacher will use demonstration method showing varrious types ores its processes of extraction. Text Book: NCERT Reference: Chemistry books by pradeep.	1. Activating prior knowledge by random questioning 2. Introducing the topic to be taught after getting the expected response from the students. 3. Developing hypothesis by (a) Brain storming, (b) Lecture, (c)Discussion and (d)In Text Questions	1 . The teacher will give Home Assignments and the areas of assessment will be Content of Knowledge, Presentation, Correctness, Time management and Thinking skills 2. Divide the students in the class in four groups and ask them to give examples of metallurical elements., 3. Remind the students about the physical and chemical extraction.. 4. Group Discussion related to extraction of metallurgical elements. 5. In Text Questions
Chapter-6 p-block elements	19	1.concept on group 16,17,& 18 elements. 2.Characteristics properties of these elements. 3.Idea about their structure.	Make it sure that the student learns the concepts given: 1. The brief idea of various p-Block elements. 2. Knowing the application p-Block element. 3. Identifying reactivity of p-Block element.	In addition to general teaching tools including blackboard and chalk, etc, the teacher will use demonstration method showing varrious types of properties and uses of p-Block element. Text Book: NCERT Reference: Chemistry books by pradeep.	1. Activating prior knowledge by random questioning 2. Introducing the topic to be taught after getting the expected response from the students. 3. Developing hypothesis by (a) Brain storming, (b) Lecture, (c)Discussion and (d)In Text Questions	1 . The teacher will give Home Assignments and the areas of assessment will be Content of Knowledge, Presentation, Correctness, Time management and Thinking skills 2. Divide the students in the class in four groups and ask them to give examples of differentp-Block element, 3. Remind the students about the physical and chemical properties of p-Block element. 4. Group Discussion related to p-Block element 5. In Text Questions

HARIHARANANDA BALSAHRAM, ARUA, KENDRAPARA, PEDAGOGICAL PLAN FOR THE SESSION-2019-20 (Class-XII)

Chapter-7 d&f block elements	12	1. Concept on general introduction, electronic configuration, occurrence and characteristics of transition metals, 2.General trends in properties of the first row transition metals - metallic character, ionization enthalpy, oxidation states, ionic radii, colour, catalytic property, magnetic properties, 3.preparation and properties of K2Cr2O7 and KMnO4.	Make it sure that the student learns the concepts given: 1. The brief idea of various transition metals. 2. Knowing the application regarding K2Cr2O7 and KMnO4. 3. Identifying reactivity of properties of K2Cr2O7 and KMnO4.	In addition to general teaching tools including blackboard and chalk, etc, the teacher will use demonstration method showing varrious transition metals complexes structure. Text Book: NCERT Reference: Chemistry books by pradeep.	1. Activating prior knowledge by random questioning 2. Introducing the topic to be taught after getting the expected response from the students. 3. Developing hypothesis by (a) Brain storming, (b) Lecture, (c)Discussion and (d)In Text Questions	1 . The teacher will give Home Assignments and the areas of assessment will be Content of Knowledge, Presentation, Correctness, Time management and Thinking skills 2. Divide the students in the class in four groups and ask them to give examples of different types of reactions, 3. Remind the students about the physical and chemical properties of K2Cr2O7 and KMnO4. 4. Group Discussion related to transition metals. 5. In Text Questions
Chapter-8 Co ordination compound	15	1.Coordination compounds - Introduction, ligands, coordination number, colour, magnetic properties and shapes. 2. IUPAC nomenclature of mononuclear coordination compounds. 3. Werner's theory, VBT, and CFT; structure and stereoisomerism. 4. importance of coordination compounds (in qualitative inclusion, extraction of metals and biological system).	Make it sure that the student learns the concepts given: 1. The brief idea of various coordination compound. 2. Knowing the application Coordination compounds. 3. Identifying reactivity and structure of Coordination compounds.	In addition to general teaching tools including blackboard and chalk, etc, the teacher will use demonstration method showing varrious types Coordination compounds and structural model. Text Book: NCERT Reference: Chemistry books by pradeep.	1. Activating prior knowledge by random questioning 2. Introducing the topic to be taught after getting the expected response from the students. 3. Developing hypothesis by (a) Brain storming, (b) Lecture, (c)Discussion and (d)In Text Questions	1 . The teacher will give Home Assignments and the areas of assessment will be Content of Knowledge, Presentation, Correctness, Time management and Thinking skills 2. Divide the students in the class in four groups and ask them to give examples of Coordination compounds, 3. Remind the students about the physical and chemical properties of Coordination compounds. 4. Group Discussion related to Coordination compounds. 5. In Text Questions
Chapter-9 Halo alkanes and Halo arenes	12	1.Concept on Haloalkanes. 2. Idea about the Nomenclature, nature of C-X bond, physical and chemical properties, mechanism of	Make it sure that the student learns the concepts given: 1. The brief idea of	Make it sure that the student learns the concepts given: 1. The brief idea of	1. Activating prior knowledge by random questioning 2. Introducing the	1 . The teacher will give Home Assignments and the areas of assessment will be Content of Knowledge, Presentation,

		substitution reactions, optical rotation. 3.Concept on Haloarenes: Nature of C-X bond, substitution reactions (Directive influence of halogen in monosubstituted compounds only). 4. Application ,Uses and environmental effects of - dichloromethane, trichloromethane, tetrachloromethane, iodoform, freons, DDT.	various Haloalkanes and halo arenes. 2. Knowing the application regarding akyl halides.. 3. Identifying reactivity of Haloalkanes and halo arenes.	various types of solution. 2. Identification of various application for Haloalkanes. 3. Identifying the mechanism for named reaction by using different method.	topic to be taught after getting the expected response from the students. 3. Developing hypothesis by (a) Brain storming, (b) Lecture, (c)Discussion and (d)In Text Questions	Correctness, Time management and Thinking skills 2. Divide the students in the class in four groups and ask them to give examples of different types of reactions, 3. Remind the students about the physical and chemical properties of Haloalkanes haloarenes. 4. Group Discussion related to named reaction. 5. In Text Questions
Chapter-10 Alcohol,Phenol & Ether	15	1.Concept on preparation,physical and chemical properties of alcohol,phenol,ether .	Make it sure that the student learns the concepts given: 1. The brief idea of various alcohol,phenol,ether. 2. Knowing the application alcohol,phenol,ether. 3. Identifying reactivity of alcohol,phenol,ether and mechanism.	In addition to general teaching tools including blackboard and chalk, etc, the teacher will use demonstration method showing varrious types alcohol,phenol,ether. Text Book: NCERT Reference: Chemistry books by pradeep.	1. Activating prior knowledge by random questioning 2. Introducing the topic to be taught after getting the expected response from the students. 3. Developing hypothesis by (a) Brain storming, (b) Lecture, (c)Discussion and (d)In Text Questions	1 . The teacher will give Home Assignments and the areas of assessment will be Content of Knowledge, Presentation, Correctness, Time management and Thinking skills 2. Divide the students in the class in four groups and ask them to give examples of different types of reactions of alcohol,phenol,ether. 3. Remind the students about the physical and chemical changes. 4. Group Discussion related to corrosion and rusting. 5. In Text Questions

HARIHARANANDA BALSAHRAM, ARUA, KENDRAPARA, PEDAGOGICAL PLAN FOR THE SESSION-2019-20 (Class-XII)

Chapter-11 Aldehyde, Ketone & Carboxylic acid	22	1.Concept on preparation,properties of Aldehydes and Ketones and carboxylic acid. 2.Application regarding its uses.	Make it sure that the student learns the concepts given: 1. The brief idea of various reaction Aldehydes and Ketones and carboxylic acid. 2. Knowing the application regarding mechanism. 3. Identifying reactivity of Aldehydes and Ketones and carboxylic acid	In addition to general teaching tools including blackboard and chalk, etc, the teacher will use demonstration method showing varrious typesAldehydes and Ketones and carboxylic acid Text Book: NCERT Reference: Chemistry books by pradeep.	Make it sure that the student learns the concepts given: 1. The brief idea of various types of solution. 2. Identification of various application for Aldehydes and Ketones and carboxylic acid. 3. Identifying themechanism..	1 . The teacher will give Home Assignments and the areas of assessment will be Content of Knowledge, Presentation, Correctness, Time management and Thinking skills 2. Divide the students in the class in four groups and ask them to give examples of different types of reactions, 3. Remind the students about Aldehydes and Ketones and carboxylic acid. 4. Group Discussion related to varrious question. 5. In Text Questions
Chapter-12 Organic compound containing nitrogen	12	1.Concept on Amine Diazonium salts: Preparation, chemical reactions and importance in synthetic organic chemistry.	Make it sure that the student learns the concepts given: 1. The brief idea about the amines and carbohydrates . 2. Knowing the application Amine . 3. Identifying the physical and chemical properties.	In addition to general teaching tools including blackboard and chalk, etc, the teacher will use demonstration method showing varrious types of amines. Text Book: NCERT Reference: Chemistry books by pradeep.	1. Developing hypothesis by (a) Brain stormingDeveloping hypothesis by (a) Brain storming,(b) Lecture, (c)Discussion and (d)In Text Questions 2. Introducing the topic to be taught after getting the expected response from the students. 3. Activating prior knowledge by random questioning.	1 . The teacher will give Home Assignments and the areas of assessment will be Content of Knowledge, Presentation, Correctness, Time management and Thinking skills 2. Divide the students in the class in four groups and ask them to give examples of different types of reactions, ofamine and BDC. 3. Remind the students about amines. 4. Group Discussion related to corrosion and rusting. 5. In Text Questions

HARIHARANANDA BALSAHRAM, ARUA, KENDRAPARA, PEDAGOGICAL PLAN FOR THE SESSION-2019-20 (Class-XII)

Chapter-13 Bio molecules	12	1.Concept on Carbohydrates. 2.Idea about Classification (aldoses and ketoses), monosaccahrides (glucose and fructose). 3.Concept on D-L configuration oligosaccharides (sucrose, lactose, maltose), polysaccharides (starch, cellulose, glycogen); Importance of carbohydrates. 4.Concept on Proteins 2.Elementary idea of - amino acids, peptide bond, polypeptides, proteins.3. structure of proteins - primary, secondary, tertiary structure and quaternary structures .	Make it sure that the student learns the concepts given: 1. The brief idea of various Carbohydrates. 2. Knowing the application regarding classification. 3. Identifying the carbohydrates,proteins.	In addition to general teaching tools including blackboard and chalk, etc, the teacher will use demonstration method showing varrious types Carbohydrates Text Book: NCERT Reference: Chemistry books by pradeep.	1. Activating prior knowledge by random questioning 2. Introducing the topic to be taught after getting the expected response from the students. 3. Developing hypothesis by (a) Brain storming, (b) Lecture, (c)Discussion and (d)In Text Questions	1 . The teacher will give Home Assignments and the areas of assessment will be Content of Knowledge, Presentation, Correctness, Time management and Thinking skills 2. Divide the students in the class in four groups and ask them to give examples of different types of reactions, 3. Remind the students about the Carbohydrates. 4. Group Discussion related to proteins and aminoacids. 5. In Text Questions
Chapter-14 Polymers	5	1.Concept on polymerization. 2.Application of some important polymers: natural and synthetic like polythene, nylon polyesters, bakelite, rubber. 3.Concept on Biodegradable and nonbiodegradable polymers	Make it sure that the student learns the concepts given: 1. The brief idea of importance of polymer. 2. Knowing the application of varrious biodegradable polymerl. 3. Identifying the characteristics of synthetic polymer.	In addition to general teaching tools including blackboard and chalk, etc, the teacher will use demonstration method showing varrious biodegradable and non bio degradable polymer. Text Book: NCERT Reference: Chemistry books solomon.	1. Activating prior knowledge by random questioning 2. Introducing the topic to be taught after getting the expected response from the students. 3. Developing hypothesis by (a) Brain storming, (b) Lecture, (c)Discussion and (d)In Text Questions	1 . The teacher will give Home Assignments and the areas of assessment will be Content of Knowledge, Presentation, Correctness, Time management and Thinking skills 2. Divide the students in the class in four groups and ask them to give examples of synthetic and natural polymer. 3. Remind the students about theproperties of polymer. 4. Group Discussion related to their properties and uses. 5. In Text Questions

HARIHARANANDA BALSAHRAM, ARUA, KENDRAPARA, PEDAGOGICAL PLAN FOR THE SESSION-2019-20 (Class-XII)

Subject: Mathematics						
Sl. No.	**Name of the Chapter**	**No of periods**	**Learning Out comes**	**Internal tools/ References**	**Pedagogy/Teaching Methodology**	**Assessment**
1	Relations and functions	15	1. Relation 2. Types of Relations a) Empty relation b) Universal relation c) Reflexive relation d) Symmetric relation e) Transitive relation 3. Equivalence realation 4. Function 5. Types of functions a) Injective b) Surjective c) Bijective 6. Composition of a function 7. Inverse of a Function	Black Board, Chalk, NCERT Book	Activating prior knowledge by random questioning ➢ Introducing the topic to be taught after getting the expected response from the students. ➢ Developing hypothesis by (a) Brain storming, (b) Lecture , (c) Discussion and (d) In Text Question Answer discussion	• Class work • Home work • Group Discussion • MCQ Texts • Verbal Text • Activity Work • Unit Text
2	Inverse Trigonometric function	15	1. Recall all the trigonometric identities 2. Domain and principal value branch of all inverse trig. Functions 3. Properties of inverse trigonometric functions 4. Application problems a) Evaluate the trigonometric functions b) Evaluating Trig. Functions by using Trig. Identities c) To reduce to simplest form d) To solve for unknown variables x and theta e) Problem involving sin and cos	Black Board, Chalk, NCERT Book	Activating prior knowledge by random questioning ➢ Introducing the topic to be taught after getting the expected response from the students. ➢ Developing hypothesis by (a) Brain storming, (b) Lecture , (c) Discussion and (d) In Text	• Class work • Home work • Group Discussion • MCQ Texts • Verbal Text • Activity Work • Unit Text

HARIHARANANDA BALSAHRAM, ARUA, KENDRAPARA, PEDAGOGICAL PLAN FOR THE SESSION-2019-20 (Class-XII)

					Question Answer discussion	
3	Matrices	25		Black Board, Chalk, NCERT Book	Activating prior knowledge by random questioning ➢ Introducing the topic to be taught after getting the expected response from the students. ➢ Developing hypothesis by (a) Brain storming, (b) Lecture , (c) Discussion and (d) In Text Question Answer discussion	➢ Class work ➢ Home work ➢ Group Discussion ➢ MCQ Texts ➢ Verbal Text ➢ Activity Work ➢ Unit Text
4	Determinant	25	The teacher should explain the following points before explaining the concepts. 1. Explain the difference between a matrix and a determinant. Determinant is a number or a function we associate with a matrix. 2. Determinant of a matrix of order 1 and order 2. 3. Determinant of a matrix of order 3. It can be done by expanding about any row or any column. 4. Properties of determinants.	Black Board, Chalk, NCERT Book	Activating prior knowledge by random questioning ➢ Introducing the topic to be taught after getting the expected response from the students. ➢ Developing hypothesis by (a) Brain storming, (b) Lecture , (c) Discussion and (d) In Text Question Answer	➢ Class work ➢ Home work ➢ Group Discussion ➢ MCQ Texts ➢ Verbal Text ➢ Activity Work ➢ Unit Text

			i) The value of the determinant remains unchanged if its rows and columns are interchanged. ii) If any two rows (or columns) of a determinant are interchanged, then sign of determinant changes. iii) If any two rows(or columns) of a determinant are identical then the value of the determinant is zero. iv)If each element of a row(or a column of a determinant is multiplied by constant k, then its value gets multiplied by k. v)If some or all elements of a row or column of a determinant are expressed as sum of two(or more) terms, then the determinant can be expressed a s sum of two (or more) determinants. vi)If to each element of any row or column of a determinant, the equimultiples of		discussion	

			corresponding elements of other row(or column) are adds, the value of determinant remains the same. Ie.$R_i \to R_i + kR_j$ or$C_i \to C_i + kC_j$ then value of determinant remains the same. 5. Solving problems using properties of determinants ie. problems involving proving LHS = RHS using properties. 6. Finding the area of a triangle using determinants. 7. Finding minor and cofactor of each entries 8. $\Delta = a_{11}A_{11} + a_{12}A_{12} + a_{13}A_{13}$. where$A_{ij}$ are cofactors of a_{ij} . 9. If elements of a row (or column) are multiplied with cofactors of any other row (or column) then their sum is zero. 10. Finding the adjoint and inverse of a matrix. 11. A is singular matrix implies = 0.			
5	Continuity & Differentiability	20	Understanding the concept of Continuity and differentiability and addressing the problems based on continuity and derivative of composite functions, chain rule, derivatives of inverse trigonometric functions, derivative of implicit functions. Learning the concept of exponential and logarithmic functions.	Black Board, Chalk, NCERT Book	Activating prior knowledge by random questioning ➢ Introducing the topic to be taught after getting the expected response from the students.	➢ Class work ➢ Home work ➢ Group Discussion ➢ MCQ Texts ➢ Verbal Text ➢ Activity Work ➢ Unit Text

HARIHARANANDA BALSAHRAM, ARUA, KENDRAPARA, PEDAGOGICAL PLAN FOR THE SESSION-2019-20 (Class-XII)

			Skills to solve derivatives of logarithmic and exponential function. Logarithmic differentiation, derivative of functions expressed in parametric forms. Second order derivatives, Rolle's and Lagrange's Mean Vale Theorems and their geometric interpretation.		➢ Developing hypothesis by (a) Brain storming, (b) Lecture , (c) Discussion and (d) In Text Question Answer discussion	
6	Application of Derivatives	10	**(I) Rate of change** **Recalling :** 1. Perimeter and area of plane figures. 2. C.S .A, T.S.A and Volume of solids. 3. Differentiation , chain rule. **Observing the Sign of rate of change** –Positive for increasing and negative for decreasing Definition of cost and marginal cost /Revenue and ma **Addressing the Questions of the type:-** Rate of change of Perimeter/radius/length/side ↔ Rate of change Area Rate of change of Volume ↔ Rate of change of Surface Area (II) Increasing and decreasing functions (i) Definition of Increasing, strictly increasing ,Decreasing and strictly decreasing functions and their graphs. (ii) Conditions for a function to be increasing and decreasing in the given intervals (iii) Monotonicity of functions (iv) Finding intervals – disjoint/ open intervals where the function changes its nature and solving the problems based on it. i) Finding f ′(x) in factor form.	Black Board, Chalk, NCERT Book	Activating prior knowledge by random questioning ➢ Introducing the topic to be taught after getting the expected response from the students. ➢ Developing hypothesis by (a) Brain storming, (b) Lecture , (c) Discussion and (d) In Text Question Answer discussion	➢ Class work ➢ Home work ➢ Group Discussion ➢ MCQ Texts ➢ Verbal Text ➢ Activity Work ➢ Unit Text

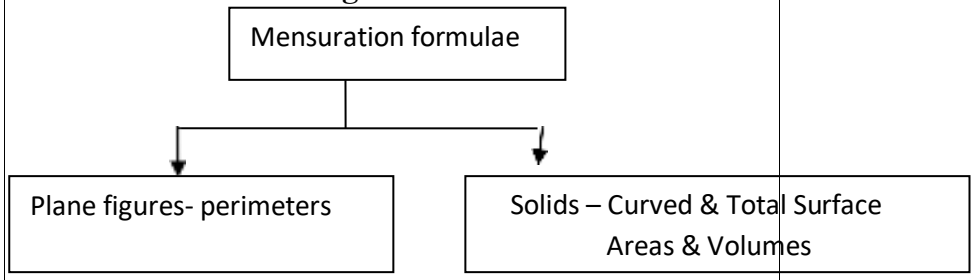
			ii) Solving f ′(x) = 0 and finding the roots. iii) If there are ‗n' roots ,then divide the real number line R into (n+1) disjoint open intervals . iv) Finding the sign of f ′(x) in each of the above intervals . v) f(x) is increasing or decreasing in the intervals when f ′(x) is positive or negative respectively Solving Problems on Polynomial functions, Trigonometric functions with simple , multiple and sub-multiple arguments. **(III) TANGENTS AND NORMAL:-** **Geometrical approach to learn about the tangent and normal through differentiation <u>a)Recalling :</u>** 1 . Equation of a line – Point – Slope form 2 .Slope of a line when two points are given. 3. Slope of the line parallel to the axes and parallel to a given line. 4. Conditions for Parallel lines & Perpendicular lines. **b)** Finding the equation of Tangent and Normal at a given point using differentiation . **c)** Slope of the tangent at $p(x_0,y_0)=\frac{dy}{dx}$ at (x_0,y_0). **d)** Slope of the normal at $p(x_0,y_0)=\frac{\square 1}{dy}$ at (x_0,y_0). **e)** dx Slope of x - axis , slope of y – axis. **(IV)** Definition of orthogonal curves**.** **APPROXIMATIONS. :-**			

1. Recall the formulae for area of plane figures, surface areas and volumes of solids.
2. o know□*x*□ *dx*,dy□ □*y*
3. **To know relative error , percentage error.**

MAXIMA AND MINIMA

1. EXPECTED LEARNING OUTCOMES:

Recalling



Learning the concepts of i)Maximum/Minimum value of a function in an open interval

(ii) Points of Local Maxima & Local Minima

(iii) Local Maxima & Local Minima

(iv) Absolute Maximum & Minimum.

(v) Point of Inflexion

(vi) Concept of Monotonic Function

A) First Derivative Test

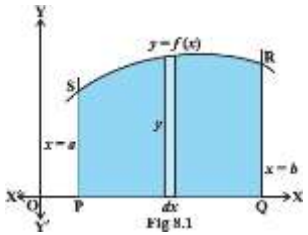
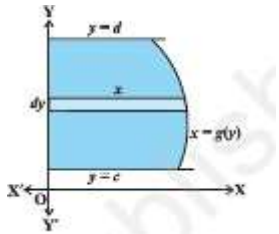
B) Second Derivative Test

Problems related to MAXIMA AND MINMA

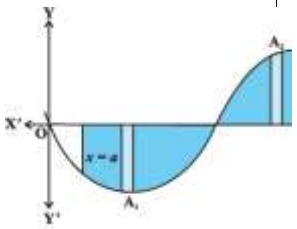
HARIHARANANDA BALSAHRAM, ARUA, KENDRAPARA, PEDAGOGICAL PLAN FOR THE SESSION-2019-20 (Class-XII)

7	Integrals	20	<u>Learning Objectives for Indefinite Integrals, Definite Integrals</u> The goal here is developing the student‘s geometric insight into the concepts of integration, and applying these concepts to problem solving and -real world application‖. Apply arithmetic, algebraic, geometric, statistical and logical reasoning to solve problems. Represent and evaluate basic mathematical and/or logical information numerically, graphically, and symbolically. Interpret mathematical and/or logical models such as formulas, graphs, tables and schematics, and draw inference from them. Students will become proficient in techniques of the concept of definite and indefinite integral and their relations to area and rate of change. In particular, the students will Compute definite and indefinite integrals 1. Express Calculus I differentiation rules as anti differentiation rules. 2. Use these anti differentiation rules and appropriate substitutions to calculate indefinite integrals. 3. Use identities to prepare indefinite integrals for solution by substitution. 4. Evaluate an indefinite integral using integration by parts. 5. Evaluate an indefinite integral using integration by partial fraction. 6. Evaluate an indefinite integral using integration trigonometric identities. 7. Evaluate an indefinite integral using integration by	Black Board, Chalk, NCERT Book	Activating prior knowledge by random questioning ➢ Introducing the topic to be taught after getting the expected response from the students. ➢ Developing hypothesis by (a) Brain storming, (b) Lecture , (c) Discussion and (d) In Text Question Answer discussion	➢ Class work ➢ Home work ➢ Group Discussion ➢ MCQ Texts ➢ Verbal Text ➢ Activity Work ➢ Unit Text

HARIHARANANDA BALSAHRAM, ARUA, KENDRAPARA, PEDAGOGICAL PLAN FOR THE SESSION-2019-20 (Class-XII)

			selecting appropriate technique 8. Evaluate an indefinite integral using integration by using a compilation of techniques. Use fundamental theorem to calculate the definite integrals.			
8	Application of Integrals	15	1. Standard equations of straight lines 2. Equation of circles with Centre at the origin, and center at (h,k) 3. Equation of parabolas 4. Equation of ellipse 5. First fundamental theorem of integral calculus 6. Second fundamental theorem of integral calculus 1.Area under the curve y=f(x)and the x-axis and the ordinates at x=a and at x=b is∫ .  Fig 8.1 2.Area under the curve x=f(y)and the x-axis and the ordinates at y=c and at y= d is∫  	Black Board, Chalk, NCERT Book	Activating prior knowledge by random questioning ➢ Introducing the topic to be taught after getting the expected response from the students. ➢ Developing hypothesis by (a) Brain storming, (b) Lecture , (c) Discussion and (d) In Text Question Answer discussion	

HARIHARANANDA BALSAHRAM, ARUA, KENDRAPARA, PEDAGOGICAL PLAN FOR THE SESSION-2019-20 (Class-XII)

			3.The area bounded by the curve y=f(x) and x-axis and the ordinates x=a and x=b is given by A_1 +A_2=A  4.Area under two curves If y=f(x) , y= g(x) where f(x) g(x) in the [a,b] such that the point of intersection of these two curves are given by x=a and x=b obtained by taking common values of y from given equation of			
9	Differentia l Equations	15	1. The learner will learn the concept of differential equation 2. Identify an ordinary differential equation its order and degree 3. Verify whether a given function is a solution of a given ordinary differential equation 4. Find solutions of separable differential equations 5. Find solutions of homogenous differential equations 6. Solve first order linear differential equations 7. Model of radioactive, compound interest, and mixing problems using first order equations 8. Model of population dynamics using first order	Black Board, Chalk, NCERT Book	Activating prior knowledge by random questioning ➢ Introducing the topic to be taught after getting the expected response from the students. ➢ Developing hypothesis by (a) Brain storming, (b) Lecture , (c) Discussion and	➢ Class work ➢ Home work ➢ Group Discussion ➢ MCQ Texts ➢ Verbal Text ➢ Activity Work ➢ Unit Text

HARIHARANANDA BALSAHRAM, ARUA, KENDRAPARA, PEDAGOGICAL PLAN FOR THE SESSION-2019-20 (Class-XII)

			differential equations 9. Mathematical model that bring understanding about the universe and the world around us. Additionally, over the course of the class XII , the child will develop an increased ability to reason abstractly about mathematical concepts related to differential equations.		(d) In Text Question Answer discussion	
10	Vectors	15	➢ **Definition of Vectors** ➢ Definition of Scalars ➢ Position Vector of a point ➢ Dc's and Dr's ➢ Types of vectors ▪ Zero Vector ▪ Unit Vector ▪ Unit vector in the direction of $\vec{} + \vec{}$ or $\vec{} \vec{}\vec{}$ ▪ Collinear Vectors/parallel vectors ▪ Equal Vectors ▪ Negative of a Vector ▪ Addition of Vectors ▪ Multiplication of a Vector by a Scalar ▪ Unit Vectors along the coordinate axes. Vector joining two points ▪ Section formula ➢ Dot product of vectors ➢ Projection of vectors on a line ➢ Perpendicular vectors ➢ **Finding the angle between the two vectors Angle between two vectors.(By scalar product)** ➢ Cross product of vectors	Black Board, Chalk, NCERT Book ⟶ ⟶	Activating prior knowledge by random questioning ➢ Introducing the topic to be taught after getting the expected response from the students. ➢ Developing hypothesis by (a) Brain storming, (b) Lecture , (c) Discussion and (d) In Text Question Answer discussion	➢ Class work ➢ Home work ➢ Group Discussion ➢ MCQ Texts ➢ Verbal Text ➢ Activity Work ➢ Unit Text

HARIHARANANDA BALSAHRAM, ARUA, KENDRAPARA, PEDAGOGICAL PLAN FOR THE SESSION-2019-20 (Class-XII)

			➢ Cross product of unit vectors. ➢ Unit vector perpendicular to two given vectors. ➢ Angle between two vectors..(By vector product) ➢ Area of parallelogram when adjacent sides are given. ➢ Area of parallelogram when diagonals are given. ➢ Area of a triangle Area of a rectangle when position vectors ➢ Scalar Triple product of vectors. ➢ Expressing the STP in rectangular coordinates. ➢ Geometrical meaning of STP. ➢ Vector Triple Product. ➢ Properties of dot, cross and STP			
11	Three Dimensional Geometry	15	❖ To understand the concepts of Direction Cosines and Direction Ratios. ❖ To acquire the different forms of equations of Lines in space. ❖ To find the point of intersection of two lines in space if they intersect. ❖ To find the angle between any two lines in space. ❖ To acquire the concept of Skew Lines and to find the distance between them. ❖ To acquire the different forms of equations of Planes in space. ❖ To find the angle between any two planes. ❖ To find the angle between a line and a plane. ❖ To find the point of intersection of a line	Black Board, Chalk, NCERT Book	Activating prior knowledge by random questioning ➢ Introducing the topic to be taught after getting the expected response from the students. ➢ Developing hypothesis by (a) Brain storming, (b) Lecture , (c) Discussion and (d) In Text Question Answer	• Class work • Home work • Group Discussion • MCQ Texts • Verbal Text • Activity Work Unit Text

HARIHARANANDA BALSAHRAM, ARUA, KENDRAPARA, PEDAGOGICAL PLAN FOR THE SESSION-2019-20 (Class-XII)

			with a plane. ❖ To find the equation of family of planes passing through the line of intersection of two planes. ❖ To find the distance between a point and a plane and distance between two planes.		discussion	
12	Linear Programming	20	❖ **To understand the nature of Linear Programming Problem.** ❖ To know about the Decision Variables. ❖ To acquire the concept (meaning) of Objective Function. ❖ To know about the Non-Negative Constraints. ❖ To construct the Structural Constraints (Inequalities). ❖ To understand the concept of Feasible Solution. ❖ To find the Optimum Solution from the Feasible Solution. ❖ To develop skills to find the Optimum Solution for the Unbounded Feasible Region. ❖ To be able to solve all practical problems of	Black Board, Chalk, Ruler, graph paper NCERT Book	Activating prior knowledge by random questioning ➢ Introducing the topic to be taught after getting the expected response from the students. ➢ Developing hypothesis by (a) Brain storming, (b) Lecture , (c) Discussion and (d) In Text Question Answer discussion Answer discussion	• Class work • Home work • Group Discussion • MCQ Texts • Verbal Text • Activity Work Unit Text

HARIHARANANDA BALSAHRAM, ARUA, KENDRAPARA, PEDAGOGICAL PLAN FOR THE SESSION-2019-20 (Class-XII)

			LPP.			
13	Probability	30	➢ To acquire the concept of Conditional Probability. ➢ To distinguish Independence Events. ➢ To acquire the concept of Partition. ➢ To understand the Theorem on Total Probability. ➢ To acquire the concept of Bayes' Theorem. ➢ To distinguish Reverse Conditional from Conditional Probability. ➢ To understand the Random Variable. ➢ To find the Probability Distribution for a Random Variable. ➢ To develop the skills to find the Mean, Variance and SD of a Random Variable. ➢ To know the Bernoulli's Trials. ➢ To acquire the Binomial Distribution. ➢ To apply all the concepts in practical/ day to day problems.	Black Board, Chalk, NCERT Book	Activating prior knowledge by random questioning ➢ Introducing the topic to be taught after getting the expected response from the students. ➢ Developing hypothesis by (a) Brain storming, (b) Lecture , (c) Discussion and (d) In Text Question Answer discussion	• Class work • Home work • Group Discussion • MCQ Texts • Verbal Text • Activity Work Unit Text
	Total	240				

HARIHARANANDA BALSAHRAM, ARUA, KENDRAPARA, PEDAGOGICAL PLAN FOR THE SESSION-2019-20 (Class-XII)

Subject-Biology						
Lesson no &Name	**No of Periods**	**Objectives (Concepts and Skills)**	**Learning Outcomes**	**Teaching Aids**	**Pedagogy/Teaching Methodology**	**Assessment**
Chapter-I Reproduction inorganisms	5	Basic concept about – • Reproduction, a characteristics feature of living organisms. • Asexual and sexual mode of reproduction. • Pre fertilization,fertilization and post fertilization events • Embryogenesis and parthenogenesis Skill • Scientific Skill • Thinking Skill • Reasoning Skill • Attentiveness skill • Problem solving Skills	It makes sure about- • Role of reproduction for continuation of species. • Different mode of asexual reproduction. • Parthenocarpy and parthenogenesis.	Text Book, Models, Flowchart, Graph, Pictures and other TLM if any	• Question and Answer method • Field trips • Discussion methods • Project method • Lecture method • Problem solving method • Demonstration method	➢ Class work ➢ Home work ➢ Group Discussion ➢ MCQ Texts ➢ Verbal Text ➢ Project Work ➢ Unit Text
Chapter-2 Sexual reproduction in flowering plants	Theory -5 Practical-3	Basic concept about – • Structure of Flower • Development of Male and female gametophytes • Pollination and pollen-pistil interaction • Fertilization and post fertilization events. • Development of seed and formation of Fruit • Apomixis, parthenocarpy, polyembryony. Skill • Scientific Skill • Thinking Skill • Reasoning Skill	It makes sure about- • Different parts and function of flower. • Microsporogenesis and megasporogenesis • Types of Pollination • Structure of pollen and embryosac • Double fertilization • Development of endosperm and embryo • Significance of Seed dispersal. • Formation of Monocot and dicot	Text Book, Models, Flowchart, Graph, Pictures and other TLM if any	• Question and Answer method • Field trips • Discussion methods • Project method • Lecture method • Problem solving method • Demonstration method	➢ Class work ➢ Home work ➢ Group Discussion ➢ MCQ Texts ➢ Verbal Text ➢ Project Work ➢ Unit Text

HARIHARANANDA BALSAHRAM, ARUA, KENDRAPARA, PEDAGOGICAL PLAN FOR THE SESSION-2019-20 (Class-XII)

		• Attentiveness skill • Problem solving Skills	embryo			
Chapter-3 Human reproduction	Theory-8 Practical-2	Basic concept about – • Male and Female Reproductive System • Anatomy of testis and ovary • Gametogenesis • Reproductive phases of male and female • Fertilization and post fertilization events. • Parturition and lactation Skill • Scientific Skill • Thinking Skill • Reasoning Skill • Attentiveness skill • Problem solving Skills	It makes sure about- • Parts and function of male and female reproductive system • Microscopic structure of testis and ovary • Spermatogenesis and oogenesis • Development of embryo • Developmental disorders and its prevention	Text Book, Models, Flowchart, Graph, Pictures and other TLM if any	• Question and Answer method • Field trips • Discussion methods • Project method • Lecture method • Problem solving method • Demonstration method	➢ Class work ➢ Home work ➢ Group Discussion ➢ MCQ Texts ➢ Verbal Text ➢ Project Work ➢ Unit Text
Chapter-4 Reproductive health	7	Basic concept about – • Reproductive health –problems and strategies. • Sexually transmitted diseases • Population explosion and birth control • Contraception and MTPS • Infertility and ARTS Skill • Scientific Skill • Thinking Skill • Reasoning Skill • Attentiveness skill • Problem solving Skills	It makes sure about- • Need of reproductive health • STDS and its prevention • Different methods of contraception • Amniocentesis • ARTS like IVF, ZIFT, GIFT.	Text Book, Models, Flowchart, Graph, Pictures and other TLM if any	• Question and Answer method • Field trips • Discussion methods • Project method • Lecture method • Problem solving method • Demonstration method	➢ Class work ➢ Home work ➢ Group Discussion ➢ MCQ Texts ➢ Verbal Text ➢ Project Work ➢ Unit Text
Chapter-5 Principles of	12	Basic concept about – • Heredity and variation	It makes sure about- • Causes of heredity	Text Book, Models,	• Question and Answer method	➢ Class work ➢ Home work

HARIHARANANDA BALSAHRAM, ARUA, KENDRAPARA, PEDAGOGICAL PLAN FOR THE SESSION-2019-20 (Class-XII)

inheritance and variation		• Mendelian principle • Deviations from Mendelism • Pleiotropy • Polygenic inheritance • Chromosomal theory of inheritance • Sex determination in human, birds and honeybees • Linkage and crossing over • Mendelian disorders and chromosomal disorders. Skill • Scientific Skill • Thinking Skill • Reasoning Skill • Attentiveness skill • Problem solving Skills	and variation • Mendel's Mono,Di and Tri hybrid cross and laws of Mendel • Incomplete dominance ,co dominance and multiple allelism. • Chromosomal mutation • Pedigree analysis • Genetic disorders	Flowchart, Graph, Pictures and other TLM if any	• Field trips • Discussion methods • Project method • Lecture method • Problem solving method • Demonstration method	➢ Group Discussion ➢ MCQ Texts ➢ Verbal Text ➢ Project Work ➢ Unit Text
Chapter-6 Molecular basis of inheritance	12	Basic concept about – • Search for genetic material and DNA as genetic material • Structure of DNA and RNA. • Packaging of DNA • Central dogma • Gene expression and gene regulation • Human genome project • DNA finger printing. Skill • Scientific Skill • Thinking Skill • Reasoning Skill • Attentiveness skill • Problem solving Skills	It makes sure about- • Double helical and molecular structure of DNA. • Proof for transforming principle as DNA • Semi conservative Method of DNA replication. • Process of replication,transcription and translation • RNA wprld and types of RNA. • Genetic code • Human genome project • DNA finger printing.	Text Book, Models, Flowchart, Graph, Pictures and other TLM if any	• Question and Answer method • Field trips • Discussion methods • Project method • Lecture method • Problem solving method • Demonstration method	➢ Class work ➢ Home work ➢ Group Discussion ➢ MCQ Texts ➢ Verbal Text ➢ Project Work ➢ Unit Text

HARIHARANANDA BALSAHRAM, ARUA, KENDRAPARA, PEDAGOGICAL PLAN FOR THE SESSION-2019-20 (Class-XII)

Chapter -7 Evolution	13	Basic concept about – • Origin of life • Evidences of evolution • Darwin's contribution • Modern synthetic theory of evolution • Mechanism of evolution • Origin andevolution of man. Skill • Scientific Skill • Thinking Skill • Reasoning Skill • Attentiveness skill • Problem solving Skills	It makes sure about- • Evolution of life on earth • Adaptive radiation • Lamarkism and neolamarkism • Mutation theory • Origin and evolution of man	Text Book, Models, Flowchart, Graph, Pictures and other TLM if any	• Question and Answer method • Field trips • Discussion methods • Project method • Lecture method • Problem solving method • Demonstration method	➢ Class work ➢ Home work ➢ Group Discussion ➢ MCQ Texts ➢ Verbal Text ➢ Project Work ➢ Unit Text
Chapter-8 Human health and disease	10	Basic concept about – • Pathogens • Parasites causing human diseases. • Basic concept of immunology • Cancer and AIDS • Adolescence- Drug and alcohol abuse Skill • Scientific Skill • Thinking Skill • Reasoning Skill • Attentiveness skill • Problem solving Skills	It makes sure about- • Human diseases and their control • Immune system of the body • Prevention of drugs and alcohol abuse during adolescence	Text Book, Models, Flowchart, Graph, Pictures and other TLM if any	• Question and Answer method • Field trips • Discussion methods • Project method • Lecture method • Problem solving method • Demonstration method	➢ Class work ➢ Home work ➢ Group Discussion ➢ MCQ Texts ➢ Verbal Text ➢ Project Work ➢ Unit Text
Chapter-9	10	Basic concept about –	It makes sure about-	Text Book,	• Question and	➢ Class work

HARIHARANANDA BALSAHRAM, ARUA, KENDRAPARA, PEDAGOGICAL PLAN FOR THE SESSION-2019-20 (Class-XII)

Strategies for enhancement in food production		• Improvement in food production • Plant breeding technique • Tissue culture • Single cell protein • Biofertification • Animal husbandry. Skill • Scientific Skill • Thinking Skill • Reasoning Skill • Attentiveness skill • Problem solving Skills	• Management of farm and farm animals. • Animal breeding and its type • Purposes of plant breeding techniques. • Tissue culture and its application.	Models, Flowchart, Graph, Pictures and other TLM if any	Answer method • Field trips • Discussion methods • Project method • Lecture method • Problem solving method • Demonstration method	➢ Home work ➢ Group Discussion ➢ MCQ Texts ➢ Verbal Text ➢ Project Work ➢ Unit Text
Chapter-10 Microbes in human welfare	10	Basic concept about – • Role of microbes in household food production. • Industrial production • Sewage treatment • Microbes as biocontrol agents and biofertilizers • Antibiotics Skill • Scientific Skill • Thinking Skill • Reasoning Skill • Attentiveness skill • Problem solving Skills	It makes sure about- • Economic importance of microbes for production of food and alcoholic drinks. • Role of microbes for waste water treatment. • Microbes for controlling insect pest. • Production and judicious use of antibiotics.	Text Book, Models, Flowchart, Graph, Pictures and other TLM if any	• Question and Answer method • Field trips • Discussion methods • Project method • Lecture method • Problem solving method • Demonstration method	➢ Class work ➢ Home work ➢ Group Discussion ➢ MCQ Texts ➢ Verbal Text ➢ Project Work ➢ Unit Text
Chapter-11 Biotechnology – Principles and processes	11	Basic concept about – • Principles of biotechnology • Tools of recombinant DNA technology. • Components of host for transformation with recombinant DNA.	It makes sure about- • Processes of recombinant DNA technology. • Tools of recombinant DNA technology. • Cloning vectors	Text Book, Models, Flowchart, Graph, Pictures and other TLM if any	• Question and Answer method • Field trips • Discussion methods • Project method • Lecture method	➢ Class work ➢ Home work ➢ Group Discussion ➢ MCQ Texts ➢ Verbal Text ➢ Project Work

HARIHARANANDA BALSAHRAM, ARUA, KENDRAPARA, PEDAGOGICAL PLAN FOR THE SESSION-2019-20 (Class-XII)

		Skill • Scientific Skill • Thinking Skill • Reasoning Skill • Attentiveness skill • Problem solving Skills			• Problem solving method • Demonstration method	➢ Unit Text
Chapter-12 Biotechnology and its application	12	• Basic concept about – Biotechnology and its application. • In health and agriculture • Application in medicine. • Gene therapy. • Molecular diagnosis. • Genetic engineering • Ethical issues. • Biopatent • Biocarpy • Biowar. Skill • Scientific Skill • Thinking Skill • Reasoning Skill • Attentiveness skill • Problem solving Skills	It makes sure about- • Application of biotechnologyin agriculture and medicine. • Transgenic plant and its advantages • Transgenic animal and its advantages. • Gene therapy	Text Book, Models, Flowchart, Graph, Pictures and other TLM if any	• Question and Answer method • Field trips • Discussion methods • Project method • Lecture method • Problem solving method • Demonstration method	➢ Class work ➢ Home work ➢ Group Discussion ➢ MCQ Texts ➢ Verbal Text ➢ Project Work ➢ Unit Text
Chapter-13 Organisms and population	8	Basic concept about – • Organisms and environment • Habitat and niche • Population and ecological adaptation • Population interactions • Population attributes	It makes sure about- • Environment, climate, habitat and niche. • Abiotic factors and responses to it • Mutualism,competiti	Text Book, Models, Flowchart, Graph, Pictures and other TLM if any	• Question and Answer method • Field trips • Discussion methods • Project method • Lecture method	➢ Class work ➢ Home work ➢ Group Discussion ➢ MCQ Texts ➢ Verbal Text ➢ Project Work

HARIHARANANDA BALSAHRAM, ARUA, KENDRAPARA, PEDAGOGICAL PLAN FOR THE SESSION-2019-20 (Class-XII)

		Skill • Scientific Skill • Thinking Skill • Reasoning Skill • Attentiveness skill • Problem solving Skills	on,predation,parasitism. • Growth,birth rate,death rate. •		• Problem solving method • Demonstration method	➢ Unit Text
Chapter-14 Ecosystem	8	Basic concept about – • Ecosystem: structure and function. • Productivity and decomposition • Trophic level,food chain and food web. • Ecological pyramid • Ecological succession and its type. • Nutrient cycling • Biogeochemical cycle • Ecosystem services. Skill • Scientific Skill • Thinking Skill • Reasoning Skill • Attentiveness skill • Problem solving Skills	It makes sure about- • Components of ecosystem • Energy flow in an ecosystem • Trophic level,food chain and food web. • Ecological pyramid • Ecological succession and its type. • Nutrient cycling • Biogeochemical cycle • Ecosystem services.	Text Book, Models, Flowchart, Graph, Pictures and other TLM if any	• Question and Answer method • Field trips • Discussion methods • Project method • Lecture method • Problem solving method • Demonstration method	➢ Class work ➢ Home work ➢ Group Discussion ➢ MCQ Texts ➢ Verbal Text ➢ Project Work ➢ Unit Text
Chapter-15 Biodiversity and its conservation	8	Basic concept about – • Concept and pattern of biodiversity • Biodiversity conservation • Loss of Biodiversity • Biodiversity conservation in India Skill • Scientific Skill • Thinking Skill	It makes sure about- • Concept and pattern of biodiversity • +Biodiversity conservation • Loss of Biodiversity • Biodiversity conservation in India • Ex situ and In situ conservation	Text Book, Models, Flowchart, Graph, Pictures and other TLM if any	• Question and Answer method • Field trips • Discussion methods • Project method • Lecture method • Problem solving method • Demonstration	➢ Class work ➢ Home work ➢ Group Discussion ➢ MCQ Texts ➢ Verbal Text ➢ Project Work ➢ Unit Text

HARIHARANANDA BALSAHRAM, ARUA, KENDRAPARA, PEDAGOGICAL PLAN FOR THE SESSION-2019-20 (Class-XII)

		• Reasoning Skill • Attentiveness skill • Problem solving Skills			method	
Chapter-16 Environmental issues	9	Basic concept about – • Pollution and classification of pollutants • Air Pollution and its control • Water Pollution and its control • Soil Pollution and its control • Sewage treatment • Solid waste management • Plastic waste Managemant • Radio active waste management • Green House Effect, global warming, ozone depletion, forest conservation and people participation in conservation of forest. Skill • Scientific • Skill • Thinking Skill • Reasoning Skill • Attentiveness skill • Problem solving Skills	It makes sure about- • Air Pollution and its control • Water Pollution and its control • Soil Pollution and its control • Sewage treatment • Solid waste management • Plastic waste Managemant • Radio active waste management • Green House Effect, global warming, ozone depletion, forest conservation and people participation in conservation of forest.	Text Book, Models, Flowchart, Graph, Pictures and other TLM if any	• Question and Answer method • Field trips • Discussion methods • Project method • Lecture method • Problem solving method • Demonstration method	➢ Class work ➢ Home work ➢ Group Discussion ➢ MCQ Texts ➢ Verbal Text ➢ Project Work ➢ Unit Text

HARIHARANANDA BALSAHRAM, ARUA, KENDRAPARA, PEDAGOGICAL PLAN FOR THE SESSION-2019-20 (Class-XII)

Subject- Health and Physical Education					
Month	No of period	content	Activities and Objectives	Tools	Pedagogy
April to June	16 each class	Human body Conditioning Games Drill/Marching Yoga	• Illness and diseases. • System of human body. • Growth and development. • To achieve and maintain a level of physical fitness. • Kabaddi • Kho-Kho • Football • Mass PT-Table-1 1 to 5 exercise. • Attention, stand at easy, left turn, right turn, about turn. • Birabhadrasana • Paschimouttanasana • Vastrika • Kapalabhati	○ Reference books ○ Charts ○ Models ○ Benches of different heights ○ Stair climbing ○ Playground ○ Cone ○ Lime powder ○ Medicine ball ○ Skipping ○ Whistle ○ Football ○ Pole ○ Drum ○ Whistle ○ Mat	❖ Health consciousness. ❖ To know about diseases and its causes. ❖ Know about the process of growing up hormonal changes. ❖ To develop muscular strength, flexibility cardio respiratory endurance. ❖ To know the rules and regulations of the game. ❖ Development of motor skill. ❖ Physically and mentally healthy and possess strength speed and stamina. ❖ They develop neuromuscular skills that promote the ability to perform work with ease and grace. ❖ Helps the student to relieve the symptoms of menopause and menstrual discomfort. ❖ Clams the brain and helps relieve stress and mild depression.
July & August	16 each class	Physical education and sports education. Athletic	• What is physical education? • Physical fitness • Sports training	○ Lime powder ○ Whistle Short put	❖ To develop awareness regarding the importance of physical fitness in individual and social life

HARIHARANANDA BALSAHRAM, ARUA, KENDRAPARA, PEDAGOGICAL PLAN FOR THE SESSION-2019-20 (Class-XII)

		Game Drill/Marching Yoga	• Fatigue • Tournament • Throw • Volleyball • Rugby • Mass PT-Team-1 6 to 10 exercises, open order march. • Surganamaskar • Halasana • Naukasana • Sinhasana • Ekapada Hastasana	○ Discus ○ Javelin ○ Volleyball ○ Rugby ○ Drum ○ Mat	including life skills. ❖ To bring the overall awareness of values with regard to personal health and fitness and to inculcate among students the desired habits and attitudes towards health to raise their health status. ❖ To participate in events that require students to further higher and faster. ❖ To enable an individual to enhance inner qualities- self-mastery, discipline, courage confidence and efficiency. ❖ To co-operate with others individual and team skill and strategic to overcome the opposition. ❖ To develop physical flexibility, mental balance and I increase the attention span. ❖ To promote self-control, concentration, peace and relaxation to avoid the ill effects of stress, strain and fatigue of routine everyday life.
Sept.& Octo.	12 each class	We and Environment Athletic Game Drill/Marching Yoga	• Waste segregation and management. • Healthy community living. • Jumping • High jump • Long jump • Triple jump • Hand ball • Throw ball • Mass PT-Table-2	○ School compost pit. ○ Outing. ○ Jumping apparatus. ○ Whistle. ○ Hand ball ○ Throw ball ○ Whistle ○ Drum ○ Mat	❖ Environmental conditions in villages, towns and slums in relation to the health status of people, waste disposal practices, measures, to prevent pollution, compost pits, soaking pits, sanitary latrines, sources of life drinking water, municipal water supply system, housing. ❖ To enable an individual to display a sense of responsibility,

HARIHARANANDA BALSAHRAM, ARUA, KENDRAPARA, PEDAGOGICAL PLAN FOR THE SESSION-2019-20 (Class-XII)

			1 to 5 exercises • Open order march. • Sasakasana • Mandukasana • Uttana Padasana • Suptabajrasana • Surya Namaskar • Trataka		patriotism self-sacrifice and service to the community in a better way. ❖ To enable an individual to enhance inner qualities, self-mastery, discipline courage, confidence and efficiency. ❖ To develop interest in exercise sports and games for self-satisfaction and make it a part of life. ❖ Development of concentration power. ❖ Increase memory. ❖ To help release of emotional stress, anxiety and tension, leading to a reduced rick of depression.

HARIHARANANDA BALSAHRAM, ARUA, KENDRAPARA, PEDAGOGICAL PLAN FOR THE SESSION-2019-20 (Class-XII)

Nov.& Dec.	12 each class	Food & Nutrition. Sports Diet. Mal Nutrition. Athletic Game Drill/Marching Yoga	• Students will develop an attitude to be selective about their food habits and also develop awareness about their right as a consumer in order to lead a healthy life. • Annual sports practise. • Basket ball • Table Tennis • Swimming • Mass PT-Table-2 6 to 1o exercise. • Suryanamaskar • Bhramari • Kapalabhati	○ Lime powder. ○ Clapper ○ Whistle ○ Throwing event apparatus. ○ Jumping event apparatus. ○ Net ○ Thais board ○ Basket ball ○ Drum ○ Whistle ○ Mat	❖ Nutrition can be defined as the procurement of substance through food, necessary for growth, development, maintenance and activities of ❖ To develop more positive attitude towards challenges, winning & losing, thus preparing students for life and for the workplace. ❖ Swimming is an individual or team sport that requires the use of one's arms and legs to move the body through water. ❖ To develop cardiovascular endurance. ❖ To develop organic fitness, formal sense organs and efficient organic systems. ❖ Students learn to stay peaceful and promoting health and vitality and treating many diseases.
January & February	14 each class	Safety security and social health. Athletic Games Drill/Marching Yoga Sana	• Protection of self and others. • Sexual harassment. • First Aid • Running • Huddles • Long run • Foot ball • Rugby • Volley ball • Mass PT-Table-3	○ Chart posture ○ First Aid box ○ Foot ball ○ Rugby ball ○ Volley ball ○ Drum ○ Mat	❖ To train the students to evacuate the building in case of fire, flood or earthquake. ❖ To developing a sense of discipline and urgency during emergency. ❖ Students know the endurance. ❖ The learners develop a scientific point of view of health and physical education.

HARIHARANANDA BALSAHRAM, ARUA, KENDRAPARA, PEDAGOGICAL PLAN FOR THE SESSION-2019-20 (Class-XII)

			1 to 5 exercise • March past • Suryanamaskar • Kukutasana • Mayarasana • Bakasana • Suptabajarasana		❖ To help strengthen peer relationships, social bonding, buddy mentorship and team camaraderie. ❖ The game develop motor planning skills, helping children to create and carry out ideas, motor actions and activities. ❖ To bring the overall awareness of value with regard to personal health and fitness and to inculcate among students the desired habits and attitudes to aware health to rise their health status. ❖ Strengthen the wrists, abdomen pelvic region, arm, leg muscles.