

ANNUAL **CURRICULUM** **PLAN**

CLASS XII SCIENCE
(SESSION: 2020-21)



RAMAKRISHNA MISSION ASHRAMA SCHOOL

AFFILIATED TO CENTRAL BOARD OF SECONDARY EDUCATION (CBSE), NEW DELHI

(A branch centre of Ramakrishna Mission, Belur Math, Howrah, W.B.)

Affiliation No: 1530142, School Code: 15442

P.O. : Hatamuniguda, Dist. : Rayagada-765 020, Odisha

Email : hatamuniguda@rkmm.org, Website : rkmmhatamuniguda.org

CALENDER FOR THE SESSION-2020-21

APRIL-2020

01st : New session Commences. Admission procedure for class V.

MAY-2020

01st : Summer Vacation for students starts. (Students may leave the campus on 30th April after 5p.m.)
10th : Summer Vacation for Teachers starts. (Teachers may leave the campus on 9th after 4 p.m.)

JUNE-2020

14th : Teachers to report after summer Vacation by 9 a.m.
15th : Students to report at the Hostel after Summer Vacation from 8 am to 8 pm
16th : School re-opens after Summer Vacation. Admission procedure for class XI.
21st : International Yoga Day
22nd : New session for standard XI commences
28th : Naveen Varan Utsav

JULY-2020

5th : Van Mahotsava
13th-18th : First Periodic Test. (Class VI to X)

AUGUST-2020

15th : Independence Day celebration.
22nd : Ganesh Puja celebration.
24th-29th : Second Periodic Test. (Class VI to X)

SEPTEMBER-2020

05th : Teacher's Day Celebration.
16th-30th : Term-I examination for V to XII.

OCTOBER-2020

02nd : Gandhi Jayanti Celebration in the evening
18th-01st : Autumn Vacation commences. Students and Teachers may leave the campus on 17th October after 4p.m.

NOVEMBER-2020

01st : Students & Teachers to report after Autumn Vacation.
02nd : School re-opens after Autumn Vacation.
05th : Result Publication of Mid-Term Examination.
09th-13th : 3rd Periodic Test. (Class VI to X)
14th : Children's Day Celebration from 9.30 am to 12.00 noon at Junior Hostel
14th : Diwali Celebration in the evening.
23rd-28th : First Mock Test for class X and XII.

DECEMBER-2020

14th-19th : Second Mock Test for class X and XII.
21st-23rd : Annual Athletic Meet.
25th : Winter Vacation commences. Teachers and Students may leave school campus on 24th after 5p.m.

JANUARY-2021

03rd : Students and Teachers to report after the Winter Vacation.
04th : School reopens after Winter Vacation.
05th : Sri Sri Maa Sarada Devi's Tithi Puja.
12th : National Youth Day celebration.
13th-19th : 4th Periodic Test. (Class VI to IX)
26th : Republic Day Celebration.

FEBRUARY-2021

04th : Sri Sri Swamiji's Tithi Puja.
7th : Annual Prize Giving ceremony
08th-14th : Third Mock Test for class X and XII.
16th : Saraswati Puja Celebration.

MARCH-2021

11th : Mahashivratri celebration.
10th-22nd : Term-II Examination.
15th : Sri Sri Ramakrishna Deva's Tithi Puja.
29th : Holi celebration.
30th : Result Publication.

The end of all education, all training should be man-making. The end and aim of all training is to make man grow. The training, by which the current and expression of will are brought under control and become fruitful, is called education. –

Swami Vivekananda



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Co – Curricular Activities Calendar for the Session 2020 - 21

JULY-2020

05/07/20 – Odia Recitation Sr. (IX – XII)
12/07/20 – Odia Recitation Jr. (V – VIII)
19/07/20 – Hindi Recitation Sr. (IX – XII)
26/07/20 – Hindi Recitation Jr. (V – VIII)

AUGUST-2020

02/08/20 – English Debate Sr. (IX – XII)
09/08/20 – English Debate Jr. (V – VIII)
16/08/19 – Odia Debate Sr. (IX – XII)
23/08/19 – Odia Debate Jr. (V – VIII)
30/08/20 – Hindi Debate Sr. (IX – XII)

SEPTEMBER-2020

06/09/20 – Hindi Debate Jr. (V – VIII)
13/09/20 – Story Telling Sr. (IX to XII)

OCTOBER-2020

04/10/20 – Story Telling Jr. (V to VIII)
11/10/20 – English Recitation Sr. (IX to XII)

NOVEMBER-2020

08/11/20 – English Recitation Jr. (V to VIII)
15/11/20 – Devotional Song Sr. (IX to XII)
22/11/20 – Devotional Song Jr. (V to VII)

TERM SCHEDULE



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First Periodic Test : 13 to 18 July, 2020

Sl No.	Date	V	VI	VII	VIII	IX	X	XI	XII
1	13/07/2020	Eng	Maths	Science	SST	Eng	SST	Eng	Phy/Geo
2	14/07/2020	Hindi	Odia	Eng	Hindi	SST	Eng	Chem/ Pol.Sc	Math/Bio/ IP
3	15/07/2020	Odia	Eng	Odia	Maths	Science	Maths	Com.Sc/ Phy.Ed	Chem/ Pol.Sc
4	16/07/2020	Maths	Comp & Science	Comp & Hindi	Comp & Eng	IT	IT	-----	-----
5	17/07/2020	EVS	Hindi	SST	Science	Odia/ Hindi	Odia/ Hindi	Math/Bio/ IP	Eng
6	18/07/2020		SST	Maths	Odia	Maths	Science	Phy/Geo	Com.Sc/ Phy.Ed

Note:

1. Respective subject teacher to take periodic test of 10 marks in their periods.

Second Periodic Test : 24 to 29 August, 2020

Sl No.	Date	V	VI	VII	VIII	IX	X	XI	XII
1	24/08/2020	Odia	Science	Maths	Odia	SST	Eng	Phy/Geo	Eng
2	25/08/2020	EVS	Eng	Odia	Science	Eng	SST	Math/Bio/ IP	Chem/ Pol.Sc
3	26/08/2020	Hindi	Odia	Eng	Comp & Eng	Maths	Science	Chem/ Pol.Sc	Com.Sc/ Phy.Ed
4	27/08/2020	Maths	Comp & Hindi	Comp & Science	Maths	IT	IT	-----	-----
5	28/08/2020	Eng	SST	Hindi	Hindi	Odia/ Hindi	Odia/ Hindi	Eng	Math/Bio/ IP
6	29/08/2020		Maths	SST	SST	Science	Maths	Com.Sc/ Phy.Ed	Phy/Geo

Note:

Respective subject teacher to take periodic test of 10 marks in their periods

Examination Date-Sheet for Term – I, Exam 2020-21 :
16 to 30 September, 2020

Sl No.	Date	V	VI	VII	VIII	IX	X	XI	XII
1	16/09/2020	Odia	Maths	Science	SST	Eng	SST	Eng	Phy/Geo
2	18/09/2020	EVS	Odia	Eng	Hindi	SST	Eng	Chem/ Pol.Sc	Math/Bio/ IP
3	21/09/2020	----	Eng	Odia	Maths	Science	-----	Com.Sc/ Phy.Ed	Chem/ Pol.Sc
4	23/09/2020	Maths	Comp	Comp	Comp	IT	IT	-----	-----
5	25/09/2020	Eng	Hindi	SST	Science	Odia/ Hindi	Hindi/ Odia	Math/Bio/ IP	Eng
6	28/09/2020	Hindi	SST	Maths	Odia	Maths	Science	Phy/Geo	Com.Sc/ Phy.Ed
7	30/09/2020	----	Science	Hindi	Eng	-----	Maths	-----	-----

Timing of Examination

Classes V to XII – 09:00 AM to 12:00 NOON

Venue of Examination

Classes V to XII – RKM Ashrama School, Hatamuniguda

Third Periodic Test : 09 to 13 November, 2020

Sl No.	Date	V	VI	VII	VIII	IX	X	XI	XII
1	09/11/2020	Odia	Maths	Science	Eng	Eng	SST	Eng	Phy/Geo
2	10/11/2020	EVS	Science	Eng	Odia & Hindi	SST	Eng	Chem/ Pol.Sc	Math/Bio/ IP
3	11/11/2020	Hindi	Eng	Odia & Hindi	Maths	Science	Odia / Hindi	Com.Sc/ Phy.Ed	Chem/ Pol.Sc
4	12/11/2020	Maths	Comp & SST	Comp & SST	Comp & SST	IT & Maths	IT & Sciences	Phy/Geo	Com.Sc/ Phy.Ed
5	13/11/2020	Eng	Hindi & Odia	Maths	Science	Odia / Hindi	Maths	Math/Bio/ IP	Eng

Note:

1. Respective subject teacher to take periodic test of 10 marks in their periods.

Time Table For First Mock Test : 23 to 28 November, 2020

Date	Class X	Class XII
23/11/2020	Science	English
24/11/2020	Social Science	Physics/ Geography
25/11/2020	English	Mathematics/ Biology / Political Science
26/11/2020	Odia / Hindi	Computer Science / Physical Education
27/11/2020	Mathematics	Informative Practices/ Chemistry
28/11/2020	Informative Technology	-----

Time Table For Second Mock Test : 14 to 19 December, 2020

Date	Class X	Class XII
14/12/2020	English	Informative Practices/ Chemistry
15/12/2020	Mathematics	Computer Science / Physical Education
16/12/2020	Science	Mathematics/ Biology / Political Science
17/12/2020	Odia / Hindi	Physics/ Geography
18/12/2020	Informative Technology	English
19/12/2020	Social Science	-----

Time Table For Third Mock Test : 08 to 13 February, 2021

Date	Class X	Class XII
08/02/2021	Social Science	Physics/ Geography
09/02/2021	Science	English
10/02/2021	Mathematics	Informative Practices/ Chemistry
11/02/2021	English	Computer Science / Physical Education
12/02/2021	Odia / Hindi	Mathematics/ Biology/ Political Science
13/02/2021	Informative Technology	-----

BOARD EXAM.

As per time table provided by CBSE Board

Curriculum Plan of English Core
(Session: 2020-2021)

Month Topic	Theme/Audio Visual Inputs	Assignment /Discussion	Listening, Speaking, Reading and Writing Skills	Core Skills/Art Integration/ Interdisciplinary Linkages
May Topic: The Last Lesson No. of Periods: 06	Understanding the Genre Literary appreciation Central Idea Plot, Protagonists, Characters	<ul style="list-style-type: none"> • Assignment on The Last Lesson (Text- based activity, origin of words, past perfect tense) • Discussion of Scoring Points/ Marking Scheme/Sample Questions 	Short review/ dramatization of the story Writing Skills Notice, Debate	Patriotism, freedom of language and the love for one's mother tongue
Topic: My Mother at Sixty Six No. of Periods: 05	Poetic Appreciation, Rhyme Scheme Poetic Devices Central Idea	<ul style="list-style-type: none"> • Assignment on My Mother at Sixty Six ((Text- based activity, Figures of speech) • Discussion of Scoring Points/ Marking Scheme/Sample Questions 	Critical evaluation of the theme conveyed by the poet	Eternal law of ageing & complex subtleties of human relationship.
Topic: The Tiger King No. of Periods: 06	Understanding the Genre Literary appreciation Central Idea Plot, Protagonists, Characters	<ul style="list-style-type: none"> • Assignment on The Tiger King (Text- based activity) • Discussion of Scoring Points/ Marking Scheme/Sample Questions 	Extrapolating the story read or life of characters after the story ends/ defending the characters' actions in the story	Transience of life & Power.
Topic: Writing Section No. of Periods: 06	Notice Writing, Advertisement	<ul style="list-style-type: none"> • Assignment on Notice & Advertisement • Discussion of Scoring Points/ Marking Scheme/Sample Questions 	Write notices for school events/processes to develop writing skills.	Freedom of expression & clarity of thoughts.

June Topic: Lost Spring No. of Periods: 06	Understanding the Genre Literary appreciation Central Idea Plot, Protagonists, Characters	<ul style="list-style-type: none"> • Assignment on Lost Spring (Text- based activity, Rhetoric) • Discussion of Scoring Points/ Marking Scheme/Sample Questions 	Comparing and contrasting the characters within the story and with other characters in stories by the same author or by the other authors Writing Skills Note Making and Reporting	Child exploitation through child labour. Power of optimism & hope.
Topic: An Elementary School Classroom in a Slum No. of Periods: 05	Poetic Appreciation Rhyme Scheme Poetic Devices Central Idea	<ul style="list-style-type: none"> • Assignment on An Elementary School Classroom in Slum(Text- based activity) • Discussion of Scoring Points/Marking Scheme/Sample Questions 	Commentary on the central idea conveyed through the poem	Poverty, Social injustice & Social inequality.
Topic: Deep Water No. of Periods: 06	Understanding the Genre Literary appreciation Central Idea Plot, Protagonists, Characters	<ul style="list-style-type: none"> • Assignment on Deep Water(Text- based activity) • Discussion of Scoring Points/Marking Scheme/Sample Questions 	Silent reading of prescribed/selected texts for comprehension Writing Skills Essay, Informal Letter	Power of determination to overcome any adversity.
Topic: Writing Section No. of Periods: 05	Letter Writing (Formal)	<ul style="list-style-type: none"> • Assignment on Letter Writing • Discussion of Scoring Points/Marking Scheme/Sample Questions 	Write on various issues to institutions seeking relevant information, lodge complaints, express thanks or tender apology	Freedom of expression & clarity of thoughts.
July Topic: The Rattrap No. of Periods: 05	Understanding the Genre Literary appreciation Central Idea Plot, Protagonists, Characters	<ul style="list-style-type: none"> • Assignment on The Rattrap(Text- based activity, Working with words, Reflexive pronoun) • Discussion of Scoring Points/Marking Scheme/Sample Questions 	Language learning activities such as role-play, dramatization, group discussion, writing, etc.	Importance of human companionship & community.
Topic: Keeping Quiet No. of Periods: 05	Poetic Appreciation Rhyme Scheme Poetic Devices Central Idea	<ul style="list-style-type: none"> • Assignment on Keeping Quiet(Text- based activity) • Discussion of Scoring Points/Marking Scheme/Sample Questions 	Silent reading of prescribed/selected texts for comprehension	Peace, humanity and self- actualization. Power of introspection.

Month Topic	Theme/Audio Visual Inputs	Assignment /Discussion	Listening, Speaking, Reading and Writing Skills	Core Skills/Art Integration/ Interdisciplinary Linkages
Topic: Indigo No. of Periods: 05	Understanding the Genre Literary appreciation Central Idea Plot, Protagonists, Characters	<ul style="list-style-type: none"> • Assignment on Indigo(Text- based activity, Working with words, Direct speech) • Discussion of Scoring Points/Marking Scheme/Sample Questions 	Encouraging students to role-play as various characters to interact with one another	Leadership & Social justice.
Topic: The Third Level No. of Periods: 05	Understanding the Genre Literary appreciation Central Idea Plot, Protagonists, Characters	<ul style="list-style-type: none"> • Assignment on The Third Level(Text-based activity) • Discussion of Scoring Points/Marking Scheme/Sample Questions 	Short review/ dramatization of the story	Time Travel & Escapism
Topic: Writing Section No. of Periods: 04	Article Writing, Report Writing	<ul style="list-style-type: none"> • Assignment on Articles & Reports • Discussion of Scoring Points/Marking Scheme/Sample Questions 	Express opinions, facts & arguments	Freedom of speech & clarity of thoughts.
		PERIODIC TEST - 1		
August Topic: Poets & Pancakes No. of Periods: 05	Understanding the Genre Literary appreciation Central Idea Plot, Protagonists, Characters	<ul style="list-style-type: none"> • Assignment on Poets & Pancakes(Text-based activity) • Discussion of Scoring Points/Marking Scheme/Sample Questions 	Critical evaluation of the plot, storyline and characters Writing Skills Practice Writing in the humorous Style	Knowledge about cosmetics & film industry.
Topic: A Thing of Beauty No. of Periods: 05	Poetic Appreciation Rhyme Scheme Poetic Devices Central Idea	<ul style="list-style-type: none"> • Assignment on A Thing of Beauty (Text-based activity) • Discussion of Scoring Points/Marking Scheme/Sample Questions 	Appreciating the idea conveyed through the poem.	Beauty and its different forms. Worldly attachment & its consequences.
Topic: The Interview No. of Periods: 05	Understanding the Genre Literary appreciation Central Idea Plot, Protagonists, Characters	<ul style="list-style-type: none"> • Assignment on The Interview (Text-based activity, Discourse linkers & signalers) • Discussion of Scoring Points/Marking Scheme/Sample Questions 	Group and pair activities like group discussion etc. Writing Skills Writing a report on an interview	Different career skills.

Month Topic	Theme/Audio Visual Inputs	Assignment /Discussion	Listening, Speaking, Reading and Writing Skills	Core Skills/Art Integration/ Interdisciplinary Linkages
Topic: Journey to the end of the Earth No. of Periods: 05	Understanding the Genre Literary appreciation Central Idea Plot, Protagonists, Characters	<ul style="list-style-type: none"> • Assignment on Journey to the end of the Earth(Text- based activity) • Discussion of Scoring Points/Marking Scheme/Sample Questions 	Commentary on the characters.	Geological history of the world.
Topic: Writing Section No. of Periods: 04	Speech, Debate	<ul style="list-style-type: none"> • Assignment on Speech & Debate • Discussion of Scoring Points/Marking Scheme/Sample Questions 	Express opinions, facts, arguments in the form a speech or debates	Freedom of expression & clarity of thoughts.
September Topic: Going Places No. of Periods: 05	Understanding the Genre Literary appreciation Central Idea Plot, Protagonists, Characters	<ul style="list-style-type: none"> • Assignment on Going Places(Text-based activity, working with words, present participle) • Discussion of Scoring Points/Marking Scheme/Sample Questions 	Role playing as authors/ poets/ dramatists to defend their works and Characters Writing Skills Noting down the points to be asked in an interview	Fantasies of adolescence versus Reality of life.
Topic: A Roadside Stand No. of Periods: 05	Poetic Appreciation Rhyme Scheme Poetic Devices Central Idea	<ul style="list-style-type: none"> • Assignment on A Roadside Stand(Text- based activity) • Discussion of Scoring Points/Marking Scheme/Sample Questions 	Discussion of the theme conveyed by the poet	Social inequality.
TERM- I EXAMINATION AND ASL				
October Topic: Should Wizard Hit Mommy? No. of Periods: 05	Understanding the Genre Literary appreciation Central Idea Plot, Protagonists, Characters	<ul style="list-style-type: none"> • Assignment on Should Wizard Hit Mommy? (Text- based activity) • Discussion of Scoring Points/Marking Scheme/Sample Questions 	Commentary on the characters	Issues of parenting. Perspective of an adult.
Topic: On the face of it No. of Periods: 05	Understanding the Genre Literary appreciation Central Idea Plot, Protagonists, Characters	<ul style="list-style-type: none"> • Assignment on On the face of it (Text-based activity) • Discussion of Scoring Points/Marking Scheme/Sample Ques. 	Dramatizing incidents from the story	Problems associated with the physical disability.

Month Topic	Theme/Audio Visual Inputs	Assignment /Discussion	Listening, Speaking, Reading and Writing Skills	Core Skills/Art Integration/ Interdisciplinary Linkages
Topic: Writing Section No. of Periods: 04	Application Writing, Invitation	<ul style="list-style-type: none"> Assignment on Application & Invitation Discussion of Scoring Points/Marking Scheme/Sample Questions 	Write applications, fill in application forms, prepare a personal bio-data for admission into colleges, universities, entrance tests & job	Freedom of expression & clarity of thoughts.
November Topic: Evans Tries an O-Level No. of Periods: 05	Understanding the Genre Literary appreciation Central Idea Plot, Protagonists, Characters	<ul style="list-style-type: none"> Assignment on Evans Tries an O-Level(Text- based activity) Discussion of Scoring Points/Marking Scheme/Sample Questions 	Short review/ dramatization of the story	Life in a prison.
Topic: Aunt Jennifer's Tigers No. of Periods: 05	Poetic Appreciation Rhyme Scheme Poetic Devices Central Idea	<ul style="list-style-type: none"> Assignment on Aunt Jennifer's Tigers(Text- based activity) Discussion of Scoring Points/Marking Scheme/Sample Questions 	Extrapolating the theme conveyed by the poet	Male chauvinism. Women empowerment.
Topic: Memories of Childhood No. of Periods: 05	Understanding the Genre Literary appreciation Central Idea Plot, Protagonists, Characters	<ul style="list-style-type: none"> Assignment on: Memories of Childhood(Text- based activity) Discussion of Scoring Points/Marking Scheme/Sample Questions 	Making an audio story out of the text to be read aloud	Racial discrimination & caste discrimination.
Topic: The Enemy No. of Periods: 05	Understanding the Genre Literary appreciation Central Idea Plot, Protagonists, Characters	<ul style="list-style-type: none"> Assignment on: The Enemy(Text- based activity) Discussion of Scoring Points/Marking Scheme/Sample Questions 	Critical evaluation of the plot, storyline and characters	Ethics of medical profession. Power of peace, love & humanism.
Topic: Writing Section No. of Periods: 04	Poster Making	<ul style="list-style-type: none"> Assignment on: Poster Making Discussion of Scoring Points/Marking Scheme/Sample Questions 	Develop writing skills & creativity in students.	Freedom of expression & clarity of thoughts.
PERIODIC TEST - 2				
December	REVISION & MOCK TEST			
January	REVISION & MOCK TEST			
February	REVISION & MOCK TEST			
March	ANNUAL EXAMINATION			

Curriculum Plan of Physics

Session (2020-21)

Month Topic	Sub Topic	Audio Visual Inputs	Concept Maps / Diagrams/ Interdisciplinary Linkages/ Art Integration	Practical/ Investigatory Project	Assignment / Discussion
May Topic: Electric Charges and Fields No. of periods: 10	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).	Video <ul style="list-style-type: none"> Gauss law and Gaussian surface 	Interdisciplinary Linkage: Math's Diagrams: 1.6, 1.8, 1.11, 1.17, 1.18, 1.20, 1.29, 1.30, 1.31 N.C.E.R.T Part 1 Art Integration: Draw diagrams of electric field at axial and equatorial point and applications of Gauss's theorem.		<ul style="list-style-type: none"> Assignment <ul style="list-style-type: none"> Electric Charges and Fields Discussion of Scoring Points/ Marking Scheme/ Sample Questions
Topic: Ray Optics and Optical Instruments No. of periods: 13	Ray Optics: Reflection of light, spherical mirrors, mirror formula, refraction of light, total internal reflection and its applications, optical fibers, refraction at spherical surfaces, lenses, thin lens formula, lens maker's formula, magnification, power of a lens, combination of thin lenses in contact, refraction of light through a prism. Scattering of light - blue colour of sky and reddish appearance of the sun at sunrise and sunset. Optical instruments: Microscopes, astronomical telescopes (reflecting and refracting), and their magnifying powers.	Video <ul style="list-style-type: none"> Dispersion and Scattering, Microscope, Telescope. 	Interdisciplinary Linkage: Math's Diagrams: 9.5, 9.10, 9.12, 9.17, 9.30, 9.31, 9.32 N.C.E.R.T part 11 Art Integration: Drive derivations and diagram of TIR, refraction spherical surfaces, lense makers formula. Diagrams of all optical instruments	Practical <ul style="list-style-type: none"> To find the value of v for different values of u in case of a concave mirror and to find the focal length. To find the focal length of a convex mirror, Using a convex lens. To find the focal length of a convex lens by plotting graphs between u 	<ul style="list-style-type: none"> Assignment <ul style="list-style-type: none"> Ray Optics and Optical Instruments Discussion of Scoring Points/ Marking Scheme/ Sample Questions

				<p>and v or between $1/u$ and $1/v$.</p> <ul style="list-style-type: none"> To find the focal length of a concave lens, using a convex lens. To determine angle of minimum deviation for a given prism by plotting a graph between angle of incidence and angle of deviation. 	
<p>June Topic: Electrostatic Potential and Capacitance No. of periods: 12</p>	<p>Electric potential, potential difference, electric potential due to a point charge, a dipole and system of charges; equipotential surfaces, electrical potential energy of a system of two point charges and of electric dipole in an electrostatic field. Conductors and insulators, free charges and bound charges inside a conductor. Dielectrics and electric polarisation, capacitors and capacitance, combination of capacitors in series and in parallel, capacitance of a parallel plate capacitor with and without dielectric medium between the plates, energy stored in a capacitor.</p>	<p>Videos</p> <ul style="list-style-type: none"> Capacitors Dielectric and its effect on capacitance 	<p>Interdisciplinary Linkage: Math's Diagrams: 2.4, 2.5, 2.11, 2.16, 2.18, 2.25, 2.30 Art Integration: Draw graph of V and E with the variation of r and diagrams of equipotential surfaces, capacitor with dielectrics and conductor</p>	<ul style="list-style-type: none"> Practical <ul style="list-style-type: none"> To determine resistance per cm of a given wire by plotting a graph of potential difference versus current 	<ul style="list-style-type: none"> Assignment <ul style="list-style-type: none"> Electrostatic Potential and Capacitance Discussion of Scoring Points/ Marking Scheme/ Sample Questions
<p>Topic: Wave Optics No. of periods: 12</p>	<p>Wave optics: Wave front and Huygen's principle, reflection and refraction of plane wave at a plane surface using wave fronts. Proof of laws of reflection and refraction using Huygen's principle. Interference, Young's double slit experiment and expression for fringe width, coherent sources and sustained interference of light, diffraction due to a single slit, width of central maximum, resolving power of microscope and</p>	<p>Videos</p> <p>Wave fronts, Interference, Diffraction, Polarization.</p>	<p>Interdisciplinary Linkage: Math's Diagrams: 10.3, 10.4, 10.5, 10.20, 10.23 Art Integration Draw diagrams of reflection and refraction by wave theory interference, diffraction and polarization</p>	<p>Investigatory Project Alloted</p>	<ul style="list-style-type: none"> Assignment <ul style="list-style-type: none"> Wave Optics Discussion of Scoring Points/ Marking Scheme/ Sample Questions

	astronomical telescope, polarisation, plane polarised light, Brewster's law, uses of plane polarised light and Polaroids.				
July Topic: Current Electricity No. of periods: 20	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 applications to measure potential difference and for comparing EMF of two cells; measurement of internal resistance of a cell.	Video <ul style="list-style-type: none"> • Wheatstone bridge • Meter bridge • Potentiometer 	Interdisciplinary Linkage: Math's Diagrams: 3.9, 3.10, 3.11, 3.21, 3.27, 3.28 Art Integration: Draw diagrams of Kirchhoff's rule, meter bridge and potentiometer	<ul style="list-style-type: none"> • Practical <ul style="list-style-type: none"> • To find resistance of a given wire using meter bridge and hence determine the resistivity (specific resistance) of its material. • To verify the laws of combination (series/parallel) of resistances using a metre bridge. • To compare the EMF of two given primary cells using potentiometer. • To determine the internal resistance of given primary cell using potentiometer 	<ul style="list-style-type: none"> • Assignment <ul style="list-style-type: none"> ○ Current Electricity • Discussion of Scoring Points/ Marking Scheme/ Sample Questions •
Topic: Dual Nature of Radiation and Matter No. of periods: 08	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).	Video Photoelectric effect, Davison-Germer experiment	Interdisciplinary Linkage: Math's Diagrams: 11.1, 11.3, 11.5, 11.7 Art Integration: Draw and understand graph of effects of photoelectric effect	<ul style="list-style-type: none"> • 	<ul style="list-style-type: none"> • Assignment <ul style="list-style-type: none"> ○ Dual Nature of Radiation and Matter • Discussion of Scoring Points/ Marking Scheme/ Sample Questions

Month Topic	Sub Topic	Audio Visual Inputs	Concept Maps / Diagrams/ Interdisciplinary Linkages/ Art Integration	Practical/ Investigatory Project	Assignment / Discussion
August Topic: Moving Charges and Magnetism No. of periods: 12	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	Video • Cyclotron, Moving coil galvanometer	Interdisciplinary Linkage: Math's Diagrams: 4.2, 4.5, 4.6, 4.8, 4.11, 4.17, 4.18, 4.21, 4.24, 4.25, 4.26 Art Integration: Draw diagram of cyclotron, moving coil galvanometer	<ul style="list-style-type: none"> • Practical • To determine resistance of a galvanometer by half- deflection method and to find its figure of merit. • To convert the given galvanometer (of known resistance and figure of merit) into an ammeter and voltmeter of desired range and to verify the same. • To find the frequency of AC mains with a Sonometer. 	<ul style="list-style-type: none"> • Assignment <ul style="list-style-type: none"> ○ Moving Charges and Magnetism • Discussion of Scoring Points/ Marking Scheme/ Sample Questions
September Topic: Atoms No. of periods: 05	Alpha-particle scattering experiment; Rutherford's model of atom; Bohr model, energy levels, hydrogen spectrum.	Video Rutherford's model, Bohr model,	Interdisciplinary Linkage: Math's Diagrams: 12.2, 12.3, 12.8, 12.9 Art Integration: Draw diagram of energy levels of Bohr model		<ul style="list-style-type: none"> • Assignment <ul style="list-style-type: none"> ○ Atoms Discussion of Scoring Points/ Marking Scheme/ Sample Questions
Topic: Nuclei No. of periods: 09	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.	Video Radioactivity	Interdisciplinary Linkage: Math's Diagrams: 13.1, 13.3, 13.5 Art Integration: Draw graph of binding energy curve		<ul style="list-style-type: none"> • Assignment <ul style="list-style-type: none"> ○ Nuclei Discussion of Scoring Points/ Marking Scheme/ Sample Questions
• TERM I EXAMINATION					

Month Topic	Sub Topic	Audio Visual Inputs	Concept Maps / Diagrams/ Interdisciplinary Linkages/ Art Integration	Practical/ Investigatory Project	Assignment / Discussion
October Topic: Magnetism and Matter No. of periods: 10	Current loop as a magnetic dipole and its magnetic dipole moment, magnetic dipole moment of a revolving electron, magnetic field intensity due to a magnetic dipole (bar magnet) along its axis and perpendicular to its axis, torque on a magnetic dipole (bar magnet) in a uniform magnetic field; bar magnet as an equivalent solenoid, magnetic field lines; earth's magnetic field and magnetic elements. Para-, dia- and ferro - magnetic substances, with examples. Electromagnets and factors affecting their strengths, permanent magnets.	Video • Earth's magnetism	Interdisciplinary Linkage: Math's Diagrams: 5.4, 5.7, 5.13, 5.14 Art Integration: Draw diagram of earth's magnetism and graph showing variation of B and H		<ul style="list-style-type: none"> • Assignment <ul style="list-style-type: none"> ○ Magnetism and Matter • Discussion of Scoring Points/ Marking Scheme/ Sample Questions
November Topic: Alternating Current No. of periods: 10 Topic: Electromagnetic waves No. of periods: 04	Alternating currents, peak and RMS value of alternating current/voltage; reactance and impedance; LC oscillations (qualitative treatment only), LCR series circuit, resonance; power in AC circuits, power factor, wattless current. AC generator and transformer. 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.	Video • LC Oscillations, Transformers. • Video Electromagnetic waves and characteristics, Electromagnetic spectrum.	Interdisciplinary Linkage: Math's Diagrams: 7.4, 7.15, 7.16, 7.20 Art Integration: Draw phasor diagram of LCR circuit, graph of resonant free., and AC Generator Interdisciplinary Linkage: Math's Diagrams: 8.1, 8.4, 8.5		<ul style="list-style-type: none"> • Assignment <ul style="list-style-type: none"> ○ Alternating Current • Discussion of Scoring Points/ Marking Scheme/ Sample Questions • Assignment <ul style="list-style-type: none"> ○ Electro- magnetic Waves • Discussion of Scoring Points/ • Marking Scheme/ Sample Questions

Month Topic	Sub Topic	Audio Visual Inputs	Concept Maps / Diagrams/ Interdisciplinary Linkages/ Art Integration	Practical/ Investigatory Project	Assignment / Discussion
December Topic: Semi- conductor Electronics: Materials, Devices and Simple	Energy bands in conductors, semiconductors and insulators (qualitative ideas only) Semiconductor diode - I-V characteristics in forward and reverse bias, diode as a rectifier; Special purpose p-n junction diodes: LED, photodiode, solar cell and Zener diode and their characteristics, Zener diode as a voltage regulator.	Video LED, Photodiode, Solar cell, Zener diode.	Interdisciplinary Linkage: Math's Diagrams: 14.2, 14.4, 14.6, 14.10, 14.11, 14.12, 14.13, 14.16, 14.19, 14.21, 14.23, 14.28, 14.29, 14.31, 14.32, 14.36, 14.38, 14.40, 14.44	Practical <ul style="list-style-type: none"> To draw the I-V characteristic curve of a p-n junction in forward bias and reverse bias. To draw the characteristic curve	<ul style="list-style-type: none"> Assignment <ul style="list-style-type: none"> Semi-conductor Electronics: Materials, Devices and Simple Circuits
January	REVISION & MOCK TEST				
February	REVISION & MOCK TEST				
March	ANNUAL EXAMINATION				

Curriculum Plan of Chemistry
(Session: 2020-21)

Month Topic	Sub Topic	Audio Visual Inputs	Concept Maps / Diagrams/ Interdisciplinary Linkages/ Art Integration	Practical/ Investigatory Project	Assignment / Discussion
April Topic: Solutions No. of periods: 10	Types of solutions, expression of concentration of solutions of solids in liquids, solubility of gases in liquids, solid solutions, colligative properties - relative lowering of vapour pressure, Raoult's law, elevation of boiling point, depression of freezing point, osmotic pressure, determination of molecular masses using colligative properties, abnormal molecular mass, Van't Hoff factor.	Videos to show colligative properties and abnormal molecular mass, Raoult's law.	Interdisciplinary Linkage: Math's Diagrams: Fig 2.1, 2.3, 2.6, 2.7, 2.8, 2.9, 2.10, 2.11 (NCERT part 1) Art Integration: Drawing graphs on Raoult's law, deviation from Raoult's law, graphs of different on Colligative properties.	Practical: Determination of concentration/ molarity of KMnO_4 solution by titrating it against a standard solution of: <ul style="list-style-type: none"> Oxalic acid, Ferrous Ammonium Sulphate (Students will be required to prepare standard solutions by weighing themselves).	1. Assignment on Solutions 2. Discussion of Scoring Points/ Marking Scheme/ Sample Questions
Topic: Electro-chemistry No. of periods: 12	Redox reactions, conductance in electrolytic solutions, specific and molar conductivity, variations of conductivity with concentration, Kohlrausch's Law, electrolysis and law of electrolysis (elementary idea), dry cell-electrolytic cells and Galvanic cells, lead accumulator, EMF of a cell, standard electrode potential, Nernst equation and its application to chemical cells, Relation between Gibbs energy change and EMF of a cell, fuel cells, corrosion.	Videos to show fuel cells, types of batteries, corrosion.	Interdisciplinary Linkage: Math's, Physics Diagrams: Fig 3.1, 3.2, 3.3, 3.6, 3.8, 3.9, 3.10, 3.11, 3.12, 3.13 (NCERT part 1) Art Integration: Drawing graphs on variation of conductivity and molar conductivity with concentration for weak electrolyte and strong electrolyte.	Practical: (1) Thermochemistry Any one of the following experiments <ul style="list-style-type: none"> Copper Sulphate or Potassium Nitrate. Enthalpy of neutralization of strong acid (HCl) and strong base (NaOH). Determination of enthalpy change during interaction (Hydrogen bond formation) between Acetone and Chloroform. (2) Electrochemistry Variation of cell potential in $\text{Zn}/\text{Zn}^{2+} \text{Cu}^{2+}/\text{Cu}$ with change in concentration of electrolytes (CuSO_4 or ZnSO_4) at room temperature	1. Assignment on Electro-chemistry. 2. Discussion of Scoring Points/ Marking Scheme/ Sample Questions

Month Topic	Sub Topic	Audio Visual Inputs	Concept Maps / Diagrams/ Interdisciplinary Linkages/ Art Integration	Practical/ Investigatory Project	Assignment / Discussion
April Topic: Chemical Kinetics No. of periods: 10	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.	Videos to show activation energy, collision theory and rate of reaction.	Interdisciplinary Linkage: M Diagrams: Fig 4.1, 4.3, 4.4, 4.5, 4.7, 4.8, 4.9, 4.10, 4.11, 4.12 (NCERT part 1) Art Integration: Drawing graphs on instantaneous and average rate of a reaction	Practical: (1) Chemical Kinetics (a) Effect of concentration and temperature on the rate of reaction between Sodium Thio sulphate and Hydrochloric acid. (b) Study of reaction rates of any one of the following: <ul style="list-style-type: none"> Reaction of Iodide ion with Hydrogen Peroxide at room temperature using different concentration of Iodide ions. Reaction between Potassium Iodate (KIO₃) and Sodium Sulphite (Na₂SO₃) using starch solution as indicator (clock reaction). 	1. Assignment on Chemical kinetics. 2. Discussion of Scoring Points/ Marking Scheme/ Sample Questions
June Topic: Surface Chemistry No. of periods: 08	Adsorption - physisorption and chemisorption, factors affecting adsorption of gases on solids, catalysis, homogenous and heterogenous activity and selectivity; enzyme catalysis colloidal state distinction between true solutions, colloids and suspension; lyophilic, lyophobic multi-molecular and macro-molecular colloids; properties of colloids; Tyndall effect, Brownian movement, electrophoresis, coagulation, emulsion - types of emulsions.	Videos to show Tyndall effect, Brownian movement, Homogeneous and heterogeneous catalysis, enzyme catalysis.	Interdisciplinary Linkage: Physical science. Diagrams: Fig 5.1, 5.2, 5.3, 5.4, 5.6, 5.7, 5.8, 5.9, 5.10, 5.11, 5.12, 5.13, 5.14, 5.15. (NCERT part 1) Art Integration: Drawing graph on Adsorption isotherm and Freundlich Adsorption isotherm.	Practical: (1) Surface Chemistry <ul style="list-style-type: none"> Preparation of one lyophilic and one lyophobic sol Lyophilic sol - starch, egg albumin and gum Lyophobic sol - aluminium hydroxide, ferric hydroxide, arsenous sulphide. Dialysis of sol-prepared in (a) above. Study of the role of emulsifying agents in stabilizing the emulsion of different oils. Investigatory project: Topic Selection	1. Assignment on Surface Chemistry. 2. Discussion of Scoring Points/ Marking Scheme/ Sample Questions

Month Topic	Sub Topic	Audio Visual Inputs	Concept Maps / Diagrams/ Interdisciplinary Linkages/ Art Integration	Practical/ Investigatory Project	Assignment / Discussion
July Topic: General Principles and Processes of Isolation of Elements No. of periods: 08	Principles and methods of extraction - concentration, oxidation, reduction - electrolytic method and refining; occurrence and principles of extraction of aluminium, copper, zinc and iron	Videos to show different methods of extraction	Interdisciplinary Linkage: Inorganic science. Diagrams: Fig 6.1, 6.2, 6.3, 6.4, 6.5, 6.6, 6.7, 6.8, (NCERT part 1) Art Integration: Drawing graph on Adsorption isotherm and Freundlich Adsorption isotherm.	PRACTICAL: (1) Chromatography <ul style="list-style-type: none"> Separation of pigments from extracts of leaves and flowers by paper chromatography and determination of R_f values. Separation of constituents present in an inorganic mixture containing two cations only (constituents having large difference in R_f values to be provided). 	1. Assignment on General Principles and Processes of Isolation of Elements 2. Discussion of Scoring Points/ Marking Scheme/ Sample Questions
Topic: 'p' block elements No. of periods: 14	Group 16 Elements: General introduction, electronic configuration, oxidation states, occurrence, trends in physical and chemical properties, dioxygen: Preparation, Properties and uses, classification of Oxides, Ozone, Sulphur - allotropic forms; compounds of Sulphur: Preparation Properties and uses of Sulphur-dioxide, Sulphuric Acid: industrial process of manufacture, properties and uses; Oxoacids of Sulphur (Structures only). Group 17 Elements: General introduction, electronic configuration, oxidation states, occurrence, trends in physical and chemical properties; compounds of halogens	Videos to show structures of oxoacids.	Diagrams: Fig 7.5, 7.6, 7.7, 7.8, 7.9 (NCERT part 1) Art Integration: Drawing structures of oxoacids and compounds of noble gases.	Revision of practical	1. Assignment on p - Block Elements 2. Discussion of Scoring Points/ Marking Scheme/ Sample Questions

Month Topic	Sub Topic	Audio Visual Inputs	Concept Maps / Diagrams/ Interdisciplinary Linkages/ Art Integration	Practical/ Investigatory Project	Assignment / Discussion
	Group 17 Elements: Preparation, properties and uses of Chlorine and Hydrochloric acid, interhalogen compounds, Oxoacids of halogens (structures only). Group 18 Elements: General introduction, electronic configuration, occurrence, trends in physical and chemical properties, uses.				
Topic: 'd' and 'f' Block Elements No. of periods: 12	General introduction, electronic configuration, occurrence and characteristics of transition metals, general trends in properties of the first-row transition metals - metallic character, ionization enthalpy, oxidation states, ionic radii, colour, catalytic property, magnetic properties, interstitial compounds, alloy formation, preparation and properties of $K_2Cr_2O_7$ and $KMnO_4$. Lanthanoids - Electronic configuration, oxidation states, chemical reactivity and lanthanoid contraction and its consequences. Actinoids - Electronic configuration, oxidation states and comparison with lanthanoids.	Video to show lanthanoid contraction and properties of $K_2Cr_2O_7$ and $KMnO_4$.	Diagrams/ Graphs: Fig 8.1, 8.2, 8.3, 8.4, 8.6, 8.7 (NCERT part 1) Art Integration: Drawing graph on different properties like atomic radii etc.	Revision of practical	1. Assignment on 'd' and 'f' Block Elements 2. Discussion of Scoring Points/ Marking Scheme/ Sample Questions
			PERIODIC TEST - 1		3.
August Topic: Coordination Compounds No. of periods: 12	Coordination compounds - Introduction, ligands, coordination number, colour, magnetic properties and shapes, IUPAC nomenclature of mononuclear coordination compounds. Bonding, Werner's theory, VBT, and CFT; structure and stereoisomerism, importance of coordination compounds (in qualitative inclusion, extraction of metals and biological system).	Video to show stereoisomerism	Diagrams: Fig 9.1, 9.2, 9.3, 9.4, 9.5, 9.6, 9.7, 9.8, 9.9, 9.10, 9.13, 9.14 (NCERT part 1) Art Integration: Drawing structures of metal carbonyls, d orbital splitting in octahedral and tetrahedral crystal field.	Practical: (1) Preparation of inorganic compounds <ul style="list-style-type: none"> Preparation of double salt of Ferrous Ammonium Sulphate or Potash Alum. Preparation of Potassium Ferric Oxalate. 	1. Assignment on coordination compounds. 2. Discussion of Scoring Points/ Marking Scheme/ Sample Questions

Month Topic	Sub Topic	Audio Visual Inputs	Concept Maps / Diagrams/ Interdisciplinary Linkages/ Art Integration	Practical/ Investigatory Project	Assignment / Discussion
Topic: Haloalkanes and Haloarenes No. of periods: 12	Haloalkanes: Nomenclature, nature of C-X bond, physical and chemical properties, mechanism of substitution reactions, optical rotation. Haloarenes: Nature of C-X bond, substitution reactions (Directive influence of halogen in monosubstituted compounds only). Uses and environmental effects of - dichloromethane, trichloro methane, tetrachloromethane, iodoform, freons, DDT	Videos to show retention, inversion and racemic mixtures.	Diagrams: Fig 10.2, 10.3, 10.4, 10.5 (NCERT part 2) Art Integration: Drawing structures to show retention, inversion and racemic mixtures.	PRACTICAL: (1) Preparation of Organic Compounds Preparation of any one of the following compounds <ul style="list-style-type: none"> • Acetanilide • Di -benzal Acetone • p-Nitro acetanilide • Aniline yellow or 2 - Naphthol Aniline dye. 	1. Assignment on Haloalkanes and Haloarenes 2. Discussion of Scoring Points/ Marking Scheme/ Sample Questions
Topic: Alcohols, Phenols and Ethers No. of periods: 12	Alcohols: Nomenclature, methods of preparation, physical and chemical properties (of primary alcohols only), identification of primary, secondary and tertiary alcohols, mechanism of dehydration, uses with special reference to methanol and ethanol. Phenols: Nomenclature, methods of preparation, physical and chemical properties, acidic nature of phenol, electrophilic substitution reactions, uses of phenols. Ethers: Nomenclature, methods of preparation, physical and chemical properties, uses.	Video to show mechanism of dehydration in alcohols.	Art Integration: Drawing different resonating structures to explain the structure of phenol.	PRACTICAL: (1) Qualitative analysis Determination of one cation and one anion in a given salt. Cation - Pb^{2+} , Cu^{2+} , Al^{3+} , Fe^{3+} , Mn^{2+} , Zn^{2+} , Cu^{2+} , Co^{2+} , Ni^{2+} , Ca^{2+} , Sr^{2+} , Ba^{2+} , Mg^{2+} , $[\text{NH}_4]^+$ Anions – $[\text{CO}_3]^{2-}$, S^{2-} , $[\text{SO}_3]^{2-}$, $[\text{SO}_4]^{2-}$, $[\text{NO}_2]^-$, Cl^- , Br^- , I^- , $[\text{PO}_4]^{3-}$, $[\text{C}_2\text{O}_4]^{2-}$, CH_3COO^- (Note: Insoluble salts excluded) PROJECT SUBMISSION	1. Assignment on Alcohols, Phenols and Ethers 2. Discussion of Scoring Points/ Marking Scheme/ Sample Questions

Month Topic	Sub Topic	Audio Visual Inputs	Concept Maps / Diagrams/ Interdisciplinary Linkages/ Art Integration	Practical/ Investigatory Project	Assignment / Discussion
September Topic: Aldehydes, Ketones and Carboxylic Acids No. of periods: 14	Aldehydes and Ketones: Nomenclature, nature of carbonyl group, methods of preparation, physical and chemical properties, Mechanism of nucleophilic addition, reactivity of alpha hydrogen in aldehydes, uses. Carboxylic Acids: Nomenclature, acidic nature, methods of preparation, physical and chemical properties; uses.	Videos to show mechanism of addition and nucleophilic reactions	Art Integration: Writing mechanism of different reactions by showing arrows for transfer of electrons.	PRACTICAL: (1) Tests for the functional groups present in organic compounds: Unsaturation, alcoholic, phenolic, aldehydic, ketonic, carboxylic and amino (Primary) groups.	1. Assignment on Aldehydes, Ketones and Carboxylic Acids 2. Discussion of Scoring Points/ Marking Scheme/ Sample Questions
			TERM- I EXAMINATION		3.
October Topic: Organic compounds containing Nitrogen No. of periods: 12	Amines: Nomenclature, classification, structure, methods of preparation, physical and chemical properties, uses, identification of primary, secondary and tertiary amines. Cyanides and Isocyanides - will be mentioned at relevant places in text. Diazonium salts: Preparation, chemical reactions and importance in synthetic organic chemistry.	Videos to show chemical properties of amines.	Art Integration: Drawing resonating structures to explain the acidity of amines.	Revision of practical	1. Assignment on Organic compounds containing Nitrogen 2. Discussion of Scoring Points/ Marking Scheme/ Sample Questions
November Topic: Biomolecules No. of periods: 12	Carbohydrates - Classification (aldoses and ketoses), monosaccharides (glucose and fructose), D-L configuration oligosaccharides (sucrose, lactose, maltose), polysaccharides (starch, cellulose, glycogen); Importance of carbohydrates. Proteins -Elementary idea of - amino acids, peptide bond, polypeptides, proteins, structure of proteins - primary, secondary, tertiary structure and quaternary structures (qualitative idea only), denaturation of proteins; enzymes. Hormones - Elementary idea excluding structure. Vitamins - Classification and functions. Nucleic Acids: DNA and RNA.	Videos to show structure of carbohydrate, proteins and nucleic acids.	Art Integration: Drawing structures of carbohydrate, proteins and nucleic acids.	Practical: (1) Characteristic tests of carbohydrates, fats and proteins in pure samples and their detection in given food stuffs.	1. Assignment on Biomolecules 2. Discussion of Scoring Points/ Marking Scheme/ Sample Questions

Month Topic	Sub Topic	Audio Visual Inputs	Concept Maps / Diagrams/ Interdisciplinary Linkages/ Art Integration	Practical/ Investigatory Project	Assignment / Discussion
Topic: Polymers No. of periods: 06	Copolymerization, some important polymers: natural and synthetic like polythene, nylon polyesters, Bakelite, rubber. Biodegradable and nonbiodegradable polymers.	Videos to show different types of polymerization reactions.	Art Integration: Drawing structures of different monomers which form polymers.	Revision of practical	1. Assignment on Polymers 2. Discussion of Scoring Points/ Marking Scheme/ Sample Questions
Topic: Chemistry in Everyday life No. of periods: 06	Chemicals in medicines - analgesics, tranquilizers antiseptics, disinfectants, antimicrobials, antifertility drugs, antibiotics, antacids, antihistamines. Chemicals in food - preservatives, artificial sweetening agents, elementary idea of antioxidants. Cleansing agents- soaps and detergents, cleansing action.	Videos to show cleansing action of soaps.	Art Integration: Drawing lock and key mechanism of enzyme and substrate, cleansing action of soap.	Revision of practical	1. Assignment on Chemistry in Everyday life 2. Discussion of Scoring Points/ Marking Scheme/ Sample Questions
	PERIODIC TEST - 2				
December	REVISION& MOCK TEST				
January	REVISION & MOCK TEST				
February	REVISION & MOCK TEST				
March	ANNUAL EXAMINATION				

Curriculum Plan of Mathematics
(Session: 2020-2021)

Month Topic	Sub Topic	Concept/ Mathematics Activities	Discussion	Assignment
May Topic: Continuity and Differentiability No. of Periods: 20	Continuity and differentiability, derivative of composite functions, chain rule, derivative of inverse trigonometric functions, derivative of implicit functions. Concept of exponential and logarithmic functions. Derivatives of logarithmic and exponential functions. Logarithmic differentiation, derivative of functions expressed in parametric forms. Second order derivatives. Rolle's and Lagrange's Mean Value Theorems (without proof) and their geometric interpretation.	<ul style="list-style-type: none"> To find analytically the limit of a function $f(x)$ at $x = c$ and also to check the continuity of the function at that point. 	Discussion of Scoring Points/ Marking Scheme/ Sample Questions	Assignment on Continuity, differentiability and Derivatives of various functions
Topic: Relations and functions No. of periods: 15	Types of relations: reflexive, symmetric, transitive and equivalence relations. One to one and on to functions, composite functions, inverse of a function.	<ul style="list-style-type: none"> To verify that the relation R in the set L of all lines in a plane, defined by $R = \{(l, m) : l \parallel m\}$ is an equivalence relation. To demonstrate a function which is one-one but not onto. 	Discussion of Scoring Points/ Marking Scheme/ Sample Questions	Assignment on type of Relations, inverse of function, binary operation, one-one, many one, onto functions.
June Topic: Inverse Trigonometric Functions No. of Periods: 15	Definition, range, domain, principal value branch. Graphs of inverse trigonometric Functions Elementary properties of inverse trigonometric functions.	<ul style="list-style-type: none"> To draw the graph of $\sin^{-1}x$, using the graph of $\sin x$ and demonstrate the concept of mirror reflection (about the line $y = x$) To explore the principal value of the function $\sin^{-1}x$ using a unit circle 	Discussion of Scoring Points/ Marking Scheme/ Sample Questions	Assignment on Inverse Trigonometric Functions

Month Topic	Sub Topic	Concept/ Mathematics Activities	Discussion	Assignment
Topic: Matrices No. of Periods: 25	Concept, notation, order, equality, types of matrices, zero and identity matrix, transpose of a matrix, symmetric and skew symmetric matrices. Operation on matrices: Addition and multiplication and multiplication with a scalar. Simple properties of addition, multiplication and scalar multiplication. Non-commutativity of multiplication of matrices and existence of non-zero matrices whose product is the zero matrix (restrict to square matrices of order 2). Concept of elementary row and column operations. Invertible matrices and proof of the uniqueness of inverse, if it exists; (Here all matrices will have real entries).		Discussion of Scoring Points/ Marking Scheme/ Sample Questions	Assignment on Algebra of Matrices
July Topic: Integrals No. of Periods: 20	<p>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.</p> $\int \frac{dx}{x^2 \pm a^2}, \int \frac{dx}{\sqrt{x^2 \pm a^2}}, \int \frac{dx}{\sqrt{a^2 - x^2}}, \int \frac{dx}{ax^2 + bx + c}, \int \frac{dx}{\sqrt{ax^2 + bx + c}}$ $\int \frac{px + q}{ax^2 + bx + c} dx, \int \frac{px + q}{\sqrt{ax^2 + bx + c}} dx, \int \sqrt{a^2 \pm x^2} dx, \int \sqrt{x^2 - a^2} dx$ $\int \sqrt{ax^2 + bx + c} dx, \int (px + q)\sqrt{ax^2 + bx + c} dx$ <p>Definite integrals as a limit of a sum, Fundamental Theorem of Calculus (without proof). Basic properties of definite integrals and evaluation of definite integrals.</p>	<ul style="list-style-type: none"> To evaluate the definite integral $\int_a^b \sqrt{1-x^2} dx$ as the sum and verify it by actual integration 	Discussion of Scoring Points/ Marking Scheme/ Sample Questions	Assignment on Definite & Indefinite integrals
Topic: Determinants No. of Periods: 25	Determinant of a square matrix (up to 3 x 3 matrices), properties of determinants, minors, co-factors and applications of determinants in finding the area of a triangle. Adjoin and inverse of a square matrix. Consistency, inconsistency and number of solutions of system of linear equations by examples, solving system of linear equations in two or three variables (having unique solution) using inverse of a matrix.		Discussion of Scoring Points/ Marking Scheme/ Sample Questions	Assignment on Determinants (especially operation based and system of equations)
	PERIODIC TEST : 1			

Month Topic	Sub Topic	Concept/ Mathematics Activities	Discussion	Assignment
August Topic: Differential Equations No. of Periods: 15	Definition, order and degree, general and particular solutions of a differential equation. Formation of differential equation whose general solution is given. Solution of differential equations by method of separation of variables, solutions of homogeneous differential equations of first order and first degree. Solutions of linear differential equation of the type: $\frac{dy}{dx} + py = q, \text{ where } p \text{ and } q \text{ are functions of } x \text{ or constants.}$ $\frac{dx}{dy} + px = q, \text{ where } p \text{ and } q \text{ are functions of } y \text{ or constants.}$		Discussion of Scoring Points/ Marking Scheme/ Sample Questions	Assignment on Differential equations (especially homogeneous equations & linear differential equations)
Topic: Vectors No. of Periods: 15	Vectors and scalars, magnitude and direction of a vector. Direction cosines and direction ratios of a vector. Types of vectors (equal, unit, zero, parallel and collinear vectors), position vector of a point, negative of a vector, components of a vector, addition of vectors, multiplication of a vector by a scalar, position vector of a point dividing a line segment in a given ratio. Definition, Geometrical Interpretation, properties and application of scalar (dot) product of vectors, vector (cross) product of vectors, scalar triple product of vectors.	<ul style="list-style-type: none"> To verify geometrically that $\vec{c} \times (\vec{a} + \vec{b}) = \vec{c} \times \vec{a} + \vec{c} \times \vec{b}$ 	Discussion of Scoring Points/ Marking Scheme/ Sample Questions	Assignment on Dot product, cross product and triple product of vectors
	PERIODIC TEST: 2	•		

Month Topic	Sub Topic	Concept/ Mathematics Activities	Discussion	Assignment
September Topic: Applications of Derivatives No. of Periods: 10	Applications of derivatives: rate of change of bodies, increasing/decreasing functions, tangents and normal use of derivatives in approximation, maxima and minima (first derivative test motivated geometrically and second derivative test given as a provable tool). Simple problems (that illustrate basic principles and understanding of the subject as well as real-life situations).	<ul style="list-style-type: none"> To verify Rolle's Theorem & Lagrange's Theorem To understand the concepts of decreasing and increasing functions 	Discussion of Scoring Points/ Marking Scheme/ Sample Questions	Assignment on Applications of derivatives (especially increasing-decreasing functions & maxima-minima concept)
Topic: Three - dimensional Geometry No. of Periods: 15	Direction cosines and direction ratios of a line joining two points. Cartesian equation and vector equation of a line, coplanar and skew lines, shortest distance between two lines. Cartesian and vector equation of a plane. Angle between (i) two lines, (ii) two planes, a line and a plane. Distance of a point from a plane.	<ul style="list-style-type: none"> To demonstrate the equation of a plane in normal form. To measure the shortest distance between two skew lines and verify it <u>analytically</u> 	Discussion of Scoring Points/ Marking Scheme/ Sample Questions	Assignment on D.C.'s & D.R.'s of line, coplanarity, Cartesian & vector equations, shortest distance between lines and study of plane.
	TERM – 1 EXAMINATION	•		
October Topic: Probability No. of Periods: 30	Conditional probability, multiplication theorem on probability, independent events, total probability, Bayes' theorem, Random variable and its probability distribution, mean and variance of random variable. Binomial probability distribution.	<ul style="list-style-type: none"> To explain the computation of conditional probability of a given event A, when event B has already occurred through an example of throwing a pair of dice. 	Discussion of Scoring Points/ Marking Scheme/ Sample Questions	Assignment on conditional probability, Bayes' Theorem, random variable, probability distribution, mean and variance of random variable

Month Topic	Sub Topic	Concept/ Mathematics Activities	Discussion	Assignment
November Topic: Applications of the Integrals No. of Periods: 15	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).		Discussion of Scoring Points/ Marking Scheme/ Sample Questions	Assignment on Areas bounded by the curves (including all type of equations)
Topic: Linear Programming No. of Periods: 20	Introduction, related terminology such as constraints, objective function, optimization, different types of linear programming (L.P.) problems, mathematical formulation of L.P. problems, graphical method of solution for problems in two variables, feasible and infeasible regions (bounded or unbounded), feasible and infeasible solutions, optimal feasible solutions (up to three non-trivial constraints).		Discussion of Scoring Points/ Marking Scheme/ Sample Questions	Assignment on Formulation of L.P.P., feasible & infeasible solutions
	PERIODIC TEST: 3			
December	REVISION & MOCK TEST			
January	REVISION & MOCK TEST			
February	REVISION & MOCK TEST			
March	FINAL EXAMINATION			

Curriculum Plan of Biology
(Session: 2020-21)

Month Topic	Sub Topic	Audio Visual Inputs	Concept Maps / Diagrams/ Interdisciplinary Linkages/ Art Integration	Practical/ Investigatory Project	Assignment / Discussion
May Topic: Reproduction in Organisms No. of Periods: 05 Topic: Sexual Reproduction in Flowering Plants No. of Periods: 10	Reproduction, a characteristic feature of all organisms for continuation of species; modes of reproduction - asexual and sexual reproduction; asexual reproduction - binary fission, sporulation, budding, gem mule formation, fragmentation; vegetative propagation in plants. Flower structure; development of male and female gametophytes; pollination - types, agencies and examples; outbreeding devices; pollen-pistil interaction; double fertilization; post fertilization events - development of endosperm and embryo, development of seed and formation of fruit; special modes- apomixis, parthenocarpy, polyembryony; Significance of seed dispersal and fruit formation.	a. Modes of reproduction - asexual and sexual reproduction b. Events in sexual reproduction Structure of flower Pollination, Fertilization in plants. Pollen-pistil interaction;	<ul style="list-style-type: none"> • Concept Map <ul style="list-style-type: none"> ○ Figure 1.1 - Figure 1.8 ○ Figure 2.1 - Figure 2.15 	<ul style="list-style-type: none"> • Practical <ul style="list-style-type: none"> ○ Study pollen germination on a slide. ○ Flowers adapted to pollination by different agencies (wind, insects, and birds). ○ Pollen germination on stigma through a permanent slide. ○ Controlled pollination - emasculation, tagging and bagging. • Investigatory Project <ul style="list-style-type: none"> ○ Selection of the topic ○ Planning of the project ○ Experimentation for the project 	<ul style="list-style-type: none"> • Assignment <ul style="list-style-type: none"> ○ Reproduction in Organisms ○ Flower - A fascinating organ- Pollination ○ Pollen Pistil interaction- Apomixis • Discussion of Scoring Points/ Marking Scheme/ Sample Questions
June Topic: Human Reproduction	Male and female reproductive systems; microscopic anatomy of testis and ovary; gametogenesis - spermatogenesis and oogenesis; menstrual cycle; fertilisation,	Male and female reproductive systems; Spermatogenesis, oogenesis; menstrual cycle	<ul style="list-style-type: none"> • Concept Map <ul style="list-style-type: none"> ○ Figure 3.1- Figure 3.12 	<ul style="list-style-type: none"> • Practical <ul style="list-style-type: none"> ○ Identification of stages of gamete development, i.e., T.S. of testis and T.S. of ovary through permanent slides (from Grasshopper/mice). 	<ul style="list-style-type: none"> • Assignment <ul style="list-style-type: none"> ○ Male Reproductive system – oogenesis

Month Topic	Sub Topic	Audio Visual Inputs	Concept Maps / Diagrams/ Interdisciplinary Linkages/ Art Integration	Practical/ Investigatory Project	Assignment / Discussion
No. of Periods: 10	embryo development upto blastocyst formation, implantation; pregnancy and placenta formation (elementary idea); parturition (elementary idea); lactation (elementary idea).		Meiosis in onion bud cell or grasshopper testis through permanent slides.	<ul style="list-style-type: none"> Practical <ul style="list-style-type: none"> T.S. of blastula through permanent slides (Mammalian). Meiosis in onion bud cell or grasshopper testis through permanent slides. 	<ul style="list-style-type: none"> Assignment <ul style="list-style-type: none"> Menstrual cycle- Lactation Discussion of Scoring Points/ Marking Scheme/ Sample Questions
Topic: Reproductive Health No. of Periods: 05	Need for reproductive health and prevention of Sexually Transmitted Diseases (STDs); birth control - need and methods, contraception and medical termination of pregnancy (MTP); amniocentesis; infertility and assisted reproductive technologies - IVF, ZIFT, GIFT (elementary idea for general awareness).	Methods of contraception and medical termination of pregnancy (MTP); amniocentesis; infertility and assisted reproductive technologies - IVF, ZIFT, GIF	<ul style="list-style-type: none"> Concept Map <ul style="list-style-type: none"> Figure 4.1- Figure 4.4 	<ul style="list-style-type: none"> Investigatory Project <ul style="list-style-type: none"> Discussion of how to write a project/ investigatory experiment 	<ul style="list-style-type: none"> Assignment <ul style="list-style-type: none"> Reproductive Health Discussion of Scoring Points/ Marking Scheme/ Sample Questions
July Topic: Principles of Inheritance and Variation No. of Periods: 15	Heredity and variation: Mendelian inheritance; deviations from Mendelism – incomplete dominance, co- dominance, multiple alleles and inheritance of blood groups, pleiotropy; elementary idea of polygenic inheritance; chromosome theory of inheritance; chromosomes and genes; Sex determination - 9 in humans, birds and honey bee; linkage and crossing over; sex linked inheritance - haemophilia,	Incomplete dominance, co- dominance, multiple alleles and inheritance of blood groups, pleiotropy; chromosome theory of inheritance; chromosomes and genes; Sex determination	<ul style="list-style-type: none"> Concept Map <ul style="list-style-type: none"> Figure 5.1- Figure 5.17 	<ul style="list-style-type: none"> Practical <ul style="list-style-type: none"> Mendelian inheritance using seeds of different colour/sizes of any plant. Prepared pedigree charts of any one of the genetic traits such as rolling of tongue, blood groups, ear lobes, widow's peak and colour blindness 	<ul style="list-style-type: none"> Assignment <ul style="list-style-type: none"> Mendelian inheritance – polygenic inheritance Chromosomal theory of inheritance – Chromosomal disorder
			PERIODIC TEST - 1		

Month Topic	Sub Topic	Audio Visual Inputs	Concept Maps / Diagrams/ Interdisciplinary Linkages/ Art Integration	Practical/ Investigatory Project	Assignment / Discussion
	colour blindness; Mendelian disorders in humans -thalassemia; chromosomal disorders in humans; Down's syndrome, Turner's and Klinefelter's syndromes.				<ul style="list-style-type: none"> • Discussion of Scoring Points/ Marking Scheme/ Sample Questions
Topic: Molecular Basis of Inheritance No. of Periods: 15	Search for genetic material and DNA as genetic material; Structure of DNA and RNA; DNA packaging; DNA replication; Central dogma; transcription, genetic code, translation; gene expression and regulation - lac operon; genome and human and rice genome projects; DNA fingerprinting.	Structure of DNA and RNA; DNA packaging; DNA replication; Central dogma; transcription, genetic code, translation; gene expression and regulation - lac operon; genome and human and rice genome projects; DNA fingerprinting	<ul style="list-style-type: none"> • Concept Map <ul style="list-style-type: none"> ○ Figure 6.1- Figure 6.16 	<ul style="list-style-type: none"> • Investigatory Project <ul style="list-style-type: none"> ○ First draft 	<ul style="list-style-type: none"> • Assignment <ul style="list-style-type: none"> ○ The DNA-Properties of genetic material ○ RNA world-Adapter molecule ○ Translation – DNA fingerprinting • Discussion of Scoring Points/ Marking Scheme/ Sample Questions
Topic: Evolution No. of Periods: 10	Origin of life; biological evolution and evidences for biological evolution (paleontology, comparative anatomy, embryology and molecular evidences); Darwin's contribution, modern synthetic theory of evolution; mechanism of evolution - variation (mutation and recombination) and natural selection with examples, types of natural selection; Gene flow and genetic drift; Hardy - Weinberg's principle; adaptive radiation; human evolution.	Origin of life; mutation and recombination) and natural selection Gene flow and genetic drift, Hardy - Weinberg's principle, adaptive radiation, human evolution.	<ul style="list-style-type: none"> • Concept Map <ul style="list-style-type: none"> ○ Figure 7.1- Figure 7.11 	<ul style="list-style-type: none"> • Practical <ul style="list-style-type: none"> ○ Study of homologous and analogous organs with the help of charts 	<ul style="list-style-type: none"> • Assignment <ul style="list-style-type: none"> ○ Origin of life-Adaptive Radiation ○ Biological evolution – Human Evolution • Discussion of Scoring Points/ Marking Scheme/ Sample Questions
Topic: Human Health and disease	Pathogens; parasites causing human diseases (malaria, dengue, chickengunia, filariasis, ascariasis, typhoid, pneumonia, common cold,	Basic concepts of immunology – vaccines, cancer, HIV and AIDS, Adolescence, drug and alcohol abuse.	<ul style="list-style-type: none"> • Concept Map <ul style="list-style-type: none"> ○ Figure 8.1- Figure 8.11 	<ul style="list-style-type: none"> • Practical <ul style="list-style-type: none"> ○ Common disease causing or 	<ul style="list-style-type: none"> • Assignment <ul style="list-style-type: none"> ○ Common diseases in humans –immune system in the body

Month Topic	Sub Topic	Audio Visual Inputs	Concept Maps / Diagrams/ Interdisciplinary Linkages/ Art Integration	Practical/ Investigatory Project	Assignment / Discussion
No. of Periods: 15	amoebiasis, ring worm) and their control; Basic concepts of immunology - vaccines; cancer, HIV and AIDS; Adolescence - drug and alcohol abuse.			Organisms like Ascaris, Entamoeba, and Plasmodium, any fungus causing ringworm through permanent slides or specimens. Comment on symptoms of diseases that they cause	<ul style="list-style-type: none"> • Assignment <ul style="list-style-type: none"> ○ AIDS—Alcohol Abuse • Discussion of Scoring Points/ Marking Scheme/ Sample Questions
August Topic: Strategies for Enhancement in Food Production No. of Periods: 10	Improvement in food production: Plant breeding, tissue culture, single cell protein, Biofortification, Apiculture and Animal husbandry.	Plant breeding, tissue culture, single cell protein, Biofortification, Apiculture and Animal husbandry.	<ul style="list-style-type: none"> • Concept Map <ul style="list-style-type: none"> ○ Figure 9.1- Figure 9.13 	<ul style="list-style-type: none"> • Investigatory Project <ul style="list-style-type: none"> ○ Second draft 	<ul style="list-style-type: none"> • Assignment <ul style="list-style-type: none"> ○ Animal husbandry – fisheries ○ Plant breeding—Tissue culture • Discussion of Scoring Points/ Marking Scheme/ Sample Questions
Topic: Microbes in Human Welfare No. of Periods: 05	In household food processing, industrial production, sewage treatment, energy generation and microbes as bio-control agents and bio-fertilizers. Antibiotics; production and judicious use	Sewage treatment, energy generation and microbes as bio-control agents and bio-fertilizers. Antibiotics;	<ul style="list-style-type: none"> • Concept Map <ul style="list-style-type: none"> ○ Figure 10.1- Figure 10.8 	<ul style="list-style-type: none"> • 	<ul style="list-style-type: none"> • Assignment <ul style="list-style-type: none"> ○ Microbes in Human Welfare • Discussion of Scoring Points/ Marking Scheme/ Sample Questions
Topic: Principles and Processes of Biotechnology No. of Periods: 15	Genetic Engineering (Recombinant DNA Technology).	Recombinant DNA Technology	<ul style="list-style-type: none"> • Concept Map <ul style="list-style-type: none"> ○ Figure 11.1- Figure 11.7 	<ul style="list-style-type: none"> • Practical <ul style="list-style-type: none"> ○ Study the effect of different temperatures and three different pH on the activity of salivary amylase on starch. ○ Prepare a temporary mount of onion root tip to study mitosis. 	<ul style="list-style-type: none"> • Assignment <ul style="list-style-type: none"> ○ Principles and Processes of Biotechnology • Discussion of Scoring Points/ Marking Scheme/ Sample Questions

Month Topic	Sub Topic	Audio Visual Inputs	Concept Maps / Diagrams/ Interdisciplinary Linkages/ Art Integration	Practical/ Investigatory Project	Assignment / Discussion
September					
Topic: Biotechnology and Its Applications No. of Periods: 15	Application of biotechnology in health and agriculture, Human insulin and vaccine production, stem cell technology, gene therapy; genetically modified organisms – BT crops, transgenic animals; Biosafety issues, bio piracy and patents.	Gene therapy; genetically modified organisms – BT crops, transgenic animals	<ul style="list-style-type: none"> • Concept Map <ul style="list-style-type: none"> ○ Figure 12.1- Figure 12.3 	<ul style="list-style-type: none"> • Practical <ul style="list-style-type: none"> ○ Isolate DNA from available plant material such as spinach, green pea seeds, papaya, etc. • Investigatory Project <ul style="list-style-type: none"> ○ Final Draft 	<ul style="list-style-type: none"> • Assignment <ul style="list-style-type: none"> ○ Biotechnology and Its Applications • Discussion of Scoring Points/ Marking Scheme/ Sample Questions
			TERM- I EXAMINATION	•	•
October Topic: Organisms and Population No. of Periods: 07	Habitat and niche, population and ecological adaptations; population interactions - mutualism, competition, predation, parasitism; population attributes - growth, birth rate and death rate, age distribution.	Population interactions	<ul style="list-style-type: none"> • Concept Map <ul style="list-style-type: none"> ○ Figure 13.1- Figure 13.6 	<ul style="list-style-type: none"> • Practical <ul style="list-style-type: none"> ○ Study the plant population density by quadrat method. ○ Collect and study soil from at least two different sites and study them for texture, moisture content, pH and water holding capacity. ○ Correlate with the kinds of plants found in them. 	<ul style="list-style-type: none"> • Assignment <ul style="list-style-type: none"> ○ Organisms and its environment – Life history variation ○ Population interactions • Discussion of Scoring Points/ Marking Scheme/ Sample Questions
Topic: Ecosystems No. of Periods: 07	Patterns, components; productivity and decomposition; energy flow, pyramids of number, biomass, energy, nutrient cycles (carbon and phosphorous), ecological succession, ecological services - carbon fixation, pollination, seed dispersal, oxygen release.	Pyramids of number, biomass, energy, nutrient cycles (carbon and phosphorous), ecological succession, ecological services - carbon fixation, pollination	<ul style="list-style-type: none"> • Concept Map <ul style="list-style-type: none"> ○ Figure 14.1- Figure 14.7 	<ul style="list-style-type: none"> • Practical <ul style="list-style-type: none"> ○ Two plants and two animals (models/virtual images) found in xeric conditions. Comment upon their morphological adaptations. 	<ul style="list-style-type: none"> • Assignment <ul style="list-style-type: none"> ○ Ecosystem structure and function- Energy flow ○ Ecological pyramids— Ecosystem services • Discussion of Scoring Points/ Marking Scheme/ Sample Questions

Month Topic	Sub Topic	Audio Visual Inputs	Concept Maps / Diagrams/ Interdisciplinary Linkages/ Art Integration	Practical/ Investigatory Project	Assignment / Discussion
November Topic: Biodiversity and its Conservation No. of Periods: 08	Concept of biodiversity; patterns of biodiversity; importance of biodiversity, loss of biodiversity, biodiversity conservation, hotspots, endangered organisms, extinction, Red Data Book, biosphere reserves, national parks and sanctuaries.	Concept, patterns, importance, loss, conservation of biodiversity; hotspots, endangered organisms, extinction, Red Data Book, biosphere reserves, national parks and sanctuaries.	<ul style="list-style-type: none"> • Concept Map <ul style="list-style-type: none"> ○ Figure 15.1- Figure 15.2 	<ul style="list-style-type: none"> • Practical <ul style="list-style-type: none"> ○ Two plants and two animals (models / virtual images) found in aquatic conditions. Comment upon their morphological adaptations. 	<ul style="list-style-type: none"> • Assignment <ul style="list-style-type: none"> ○ Biodiversity –loss of Biodiversity ○ Biodiversity conservation • Discussion of Scoring Points/ Marking Scheme/ Sample Questions
Topic: Environmental Issues No. of Periods: 08	Air pollution and its control, water pollution and its control, agrochemicals and their effects, solid waste management, radioactive waste management, greenhouse effect and global warming, ozone depletion, deforestation. Any three case studies as success stories addressing environmental issues, diseases; dengue and chikungunya.	Air, Water pollution and its control	<ul style="list-style-type: none"> • Concept Map <ul style="list-style-type: none"> ○ Figure 16.1- Figure 16.8 	<ul style="list-style-type: none"> • Practical <ul style="list-style-type: none"> ○ Collect water from two different water bodies around you and study them for pH, clarity and presence of any living organism. ○ Study the presence of suspended particulate matter in air at two widely different sites. 	<ul style="list-style-type: none"> • Assignment <ul style="list-style-type: none"> ○ Air Pollution and its Control—Intergerated waste water treatment ○ Solid waste- Case study of people’s participation in conservation of forest • Discussion of Scoring Points/ Marking Scheme/ Sample Questions
	PERIODIC TEST - 2				
December	REVISION & MOCK TEST				
January	REVISION & MOCK TEST				
February	REVISION & MOCK TEST				
March	ANNUAL EXAMINATION				

Curriculum Plan of Computer Science
(Session: 2020-2021)

Month/Topic	Theory	Practical/Project	Miscellaneous
May No. of periods: 25 Topic: Python Revision Tour-I	➤ Python covered in Class XI <ul style="list-style-type: none"> • Tokens in Python • Barebones of a Python Programs • Variables and Assignments • Mutable and Immutable types • Expressions • If conditions • For loop • While loop • Jump statements 	<ul style="list-style-type: none"> • Write a program to find area of following using function overloading. • Area of circle (function with one parameter) • Area of rectangle (function with two parameters) Area of triangle (function with three parameters)	<ul style="list-style-type: none"> • Assignment <ul style="list-style-type: none"> ○ error finding, output based questions from python covered in class XI • Discussion of Scoring Points/ Marking Scheme/ Sample Questions • Art Integration: Draw flow chart • Inter disciplinary linkage: Mathematics • Core Skills: Problem solving, Creative thinking, Interpersonal Relationship
No. of periods: 20 Topic: Python Revision Tour-II	➤ Python data storing methods <ul style="list-style-type: none"> • Strings • Lists • Tuples • Dictionaries ➤ Sorting Techniques	<ul style="list-style-type: none"> • Program to handle data from strings by using library functions • Program to handle data from Lists • Program to handle data from Tuples by using library functions • Program to handle data from Dictionaries by using library functions • Program to do bubble sort 	

Month/Topic	Theory	Practical/Project	Miscellaneous
June No. of Periods: 15 Topic: Working with Functions	<ul style="list-style-type: none"> ➤ Understanding functions ➤ Defining functions in python <ul style="list-style-type: none"> • Flow of execution of function call • Passing parameters • Returning values ➤ Scope of variables ➤ Mutable and Immutable properties of passed data objects 	<ul style="list-style-type: none"> • Write a program to do addition, subtraction by using user defined functions • Write a program to find out area of a square by using user defined functions • Write a program to find out area of a rectangle by using user defined functions • Write a program to find out area of a triangle by using user defined functions • Write a program to convert temperature in Celsius to Fahrenheit by using user defined functions 	<ul style="list-style-type: none"> • Discussion of Scoring Points/ Marking Scheme/ Sample Questions • Art Integration: Draw flow of logic • Inter disciplinary linkage: Mathematics • Core Skills: Problem solving, Creative thinking, Interpersonal Relationship
June No. of Periods:10 Topic: Using Python Libraries	<ul style="list-style-type: none"> ➤ Library in Python <ul style="list-style-type: none"> • What is library • Importing modules in a program • Using python standard library's functions and modules • Creating a Python Library 	<ul style="list-style-type: none"> • Creation of package in python • Use the package in program 	<ul style="list-style-type: none"> • Assignment <ul style="list-style-type: none"> ○ importing entire module in a program • Discussion of Scoring Points/ Marking Scheme/ Sample Questions • Inter disciplinary linkage: Mathematics • Core Skills: Problem solving, Creative thinking, Interpersonal Relationship

Month/Topic	Theory	Practical/Project	Miscellaneous
June No. of Periods: 17 Topic: File Handling	<ul style="list-style-type: none"> ➤ Data Files <ul style="list-style-type: none"> • Opening and closing files • Reading and Writing Files <ul style="list-style-type: none"> ➤ Standard Input, Output and Error streams 	<ul style="list-style-type: none"> • Write a program to create a data file with some content • Write a program to print number of vowels present in a file • Write a program to print number of consonants present in a file • Write a program to print all the content line by line. 	<ul style="list-style-type: none"> • Project work <ul style="list-style-type: none"> ○ create a file in notepad to store about school and read data from the file in Python
July No. of Periods: 13 Topic: Recursion	<ul style="list-style-type: none"> ➤ Recursive functions • Working principles of recursive functions ➤ Recursion vs Iteration 	<ul style="list-style-type: none"> • Write a program to implement Binary Search without binary search • Write a program to implement Binary Search with binary search • Write a program to print factorial of a given number. 	<ul style="list-style-type: none"> • Assignment <ul style="list-style-type: none"> ○ Theory based questions on recursive functions ○ Programming on recursive functions <ul style="list-style-type: none"> • Discussion of Scoring Points/ Marking Scheme/ Sample Questions • Art Integration Draw flow chart for working of recursive functions <ul style="list-style-type: none"> • Core Skills: Problem solving, Creative thinking, Interpersonal Relationship
July No. of Periods: 10 Topic: Idea of Algorithmic efficiency	<ul style="list-style-type: none"> • Algorithm • Estimating complexity of algorithm • Best, Average and Worst case Complexity 		<ul style="list-style-type: none"> • Assignment <ul style="list-style-type: none"> ○ Theory based questions on Algorithmic complexity • Discussion of Scoring Points/ Marking Scheme/ Sample Questions • Core Skills: Problem solving, Creative thinking, Interpersonal Relationship

Month/Topic	Theory	Practical/Project	Miscellaneous
July No. of Periods: 20 Topic: Data Visualization using Pyplot	<ul style="list-style-type: none"> • What is Data Visualization? • Using Pyplot of Matplotlib library • Creating charts with matplotlib Library's pyplot interface • Customizing the Plot • Comparing chart types 	<ul style="list-style-type: none"> • Program to represent line chart on the basis of given data • Program to represent bar chart on the basis of given data • Program to represent pie chart on the basis of given data • Use function to add a title • Use function to add labels • Use function to add legends 	<ul style="list-style-type: none"> • Assignment <ul style="list-style-type: none"> ○ Theory based questions on Pyplot. • Discussion of Scoring Points/ Marking Scheme/ Sample Questions • Art Integration Draw different charts
August No. of Periods: 10 Topic: Society Law and Ethics	<ul style="list-style-type: none"> • Ethical issues • Open source Philosophy and Software Licenses • Privacy • Online fraud • Cyber crime • Computer forensics • Cyber law and IT Act • Technology and Society • E-Waste management • Identity theft • Gender issues while Teaching computers 		<ul style="list-style-type: none"> • Assignment <ul style="list-style-type: none"> ○ Selected questions from reference books • Discussion of Scoring Points/ Marking Scheme/ Sample Questions
August No. of periods: 15 Topic: Data Structures-I	<ul style="list-style-type: none"> • Introduction to stack • LIFO (Last in First out) Operations on stack (PUSH and POP) and its Implementation • Converting expressions from INFIX to POSTFIX notation and evaluation of Postfix expression 	<ol style="list-style-type: none"> 1. Write a python program to implement stack as an array. 2. Write a python program to implement stack as a link list. 	<ol style="list-style-type: none"> 3. Assignment <ul style="list-style-type: none"> • Conversion of infix expressions to postfix • Evaluation of postfix expression using a stack • Programs on stacks and queues 4. Audio / Video

			<ul style="list-style-type: none"> ○ PPT and Video on stack & queue • Discussion of Scoring Points/ Marking Scheme/ Sample Questions • Art integration ○ Draw diagrams to show working of stack and queue • Inter disciplinary linkage: Mathematics • Core Skills: Problem solving, Creative thinking, Interpersonal Relationship 																								
August No. of periods: 15 Topic: Data Structures-II	<ul style="list-style-type: none"> • Introduction to Queue • FIFO (First in First out operations) Operations on Queue (Insert and Delete and its Implementation in Python) • Circular queue using linked lists. 	<ol style="list-style-type: none"> 1. Write a python program to implement queue as an array. 2. Write a python program to implement queue as a link list. 3. Write a python program to implement circular queue as an array. 																									
September	TERM- I EXAMINATION																										
Half of September No. of periods: 10 Topic: MySQL SQL Revision Tour	<ul style="list-style-type: none"> • Introduction to database 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 	Write SQL commands for the following: <ol style="list-style-type: none"> 1. Create following table: items with Item no as primary key. Item name should not be blank <table border="1"> <thead> <tr> <th>Item no</th><th>Item name</th><th>Price</th><th>Quantity</th></tr> </thead> <tbody> <tr> <td>101</td><td>Soap</td><td>50</td><td>100</td></tr> <tr> <td>102</td><td>Powder</td><td>100</td><td>50</td></tr> <tr> <td>103</td><td>Cream</td><td>150</td><td>25</td></tr> <tr> <td>104</td><td>Pen</td><td>50</td><td>200</td></tr> <tr> <td>105</td><td>Soap box</td><td>20</td><td>100</td></tr> </tbody> </table> <ol style="list-style-type: none"> 2. add a column date_purchase of type 'date' 3. change the width of Iname to 25 characters. 4. remove field date_purchase. 5. remove the structure of Items table. 	Item no	Item name	Price	Quantity	101	Soap	50	100	102	Powder	100	50	103	Cream	150	25	104	Pen	50	200	105	Soap box	20	100	<ul style="list-style-type: none"> • Assignment <ul style="list-style-type: none"> ○ Database Concepts ○ SQL • Audio / Video <ul style="list-style-type: none"> ○ PPT on Relational Data Model • Discussion of Scoring Points/ Marking Scheme/ Sample Questions • Art integration <ul style="list-style-type: none"> ○ Draw diagrams to show relational data model • Inter disciplinary linkage: Mathematics • Core Skills: Problem solving, Creative thinking
Item no	Item name	Price	Quantity																								
101	Soap	50	100																								
102	Powder	100	50																								
103	Cream	150	25																								
104	Pen	50	200																								
105	Soap box	20	100																								
Half of September No. of periods: 10 Topic: MySQL SQL Revision Tour	<ul style="list-style-type: none"> • Introduction to database 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																										
Half of September No. of periods: 10 Topic: More on SQL	<ul style="list-style-type: none"> • General Concepts: Advantages of using SQL, DDL and DML • Data Types: Number/Decimal, Character/ Varchar/ Varchar2, Date SQL Commands: Create Table, Drop Table, Alter Table																										

Month/Topic	Theory	Practical/Project	Miscellaneous																																																																																							
Topic: Structured Query Language	<ul style="list-style-type: none">SQL COMMANDS: UPDATE...SET...., INSERT, DELETE, SELECT, DISTINCT, FROM, WHERE, IN, BETWEEN, GROUP BY, HAVING, ORDER BYSQL functions: SUM(), AVG(), COUNT(), MAX() and MIN()Obtaining results (SELECT query) from 2 tables using equi-join, Cartesian Product and Union	<p>1. Create a table flight with following structure: Table: FLIGHT</p> <table><tr><th>FL_NO (90 characters)</th><th>STARTING (90 characters)</th><th>ENDING (90 characters)</th><th>NO_FLIGHTS (Integer)</th><th>NO_STOPS (Integer)</th></tr></table> <p>2. Insert 9 records in above table with following values:</p> <table><tr><th>FL_NO</th><th>STARTING</th><th>ENDING</th><th>NO_FLIGHTS</th><th>NO_STOPS</th></tr><tr><td>IC301</td><td>Mumbai</td><td>Delhi</td><td>8</td><td>0</td></tr><tr><td>IC799</td><td>Bangalore</td><td>Delhi</td><td>2</td><td>1</td></tr><tr><td>MC101</td><td>Indore</td><td>Mumbai</td><td>3</td><td>0</td></tr><tr><td>IC302</td><td>Delhi</td><td>Mumbai</td><td>8</td><td>0</td></tr><tr><td>AM812</td><td>Kanpur</td><td>Bangalore</td><td>3</td><td>1</td></tr><tr><td>IC899</td><td>Mumbai</td><td>Kochi</td><td>1</td><td>4</td></tr><tr><td>AM501</td><td>Delhi</td><td>Trivandrum</td><td>1</td><td>5</td></tr><tr><td>MU499</td><td>Mumbai</td><td>Madras</td><td>3</td><td>3</td></tr><tr><td>IC701</td><td>Delhi</td><td>Ahmedabad</td><td>4</td><td>0</td></tr></table> <p>3. Create another table fares with following structure: TABLE: FARES</p> <table><tr><th>FL_NO (90 characters)</th><th>AIRLINES (90 characters)</th><th>FARE (integer)</th><th>TAX (integer)</th></tr></table> <p>4. Insert 7 records in above table with following values:</p> <table><tr><th>FL_NO</th><th>AIRLINES</th><th>FARE</th><th>TAX</th></tr><tr><td>IC701</td><td>Indian Airlines</td><td>6500</td><td>10</td></tr><tr><td>MU499</td><td>Sahara</td><td>10400</td><td>5</td></tr><tr><td>AM501</td><td>Jet Airways</td><td>13450</td><td>8</td></tr><tr><td>IC302</td><td>Indian Airlines</td><td>4300</td><td>10</td></tr><tr><td>IC799</td><td>Indian Airlines</td><td>10500</td><td>10</td></tr><tr><td>MC101</td><td>Deccan Airlines</td><td>3500</td><td>4</td></tr></table>	FL_NO (90 characters)	STARTING (90 characters)	ENDING (90 characters)	NO_FLIGHTS (Integer)	NO_STOPS (Integer)	FL_NO	STARTING	ENDING	NO_FLIGHTS	NO_STOPS	IC301	Mumbai	Delhi	8	0	IC799	Bangalore	Delhi	2	1	MC101	Indore	Mumbai	3	0	IC302	Delhi	Mumbai	8	0	AM812	Kanpur	Bangalore	3	1	IC899	Mumbai	Kochi	1	4	AM501	Delhi	Trivandrum	1	5	MU499	Mumbai	Madras	3	3	IC701	Delhi	Ahmedabad	4	0	FL_NO (90 characters)	AIRLINES (90 characters)	FARE (integer)	TAX (integer)	FL_NO	AIRLINES	FARE	TAX	IC701	Indian Airlines	6500	10	MU499	Sahara	10400	5	AM501	Jet Airways	13450	8	IC302	Indian Airlines	4300	10	IC799	Indian Airlines	10500	10	MC101	Deccan Airlines	3500	4	<ul style="list-style-type: none">Assignment<ul style="list-style-type: none">SQL (writing SQL commands for the given queriesFinding output of SQL commandsDiscussion of Scoring Points/ Marking Scheme/ Sample QuestionsInter disciplinary linkage: MathematicsCore Skills: Problem solving, Creative thinking
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Month/Topic	Theory	Practical/Project	Miscellaneous
Topic: Structured Query Language		5. Display FL_NO and number of flights from Kanpur to Bangalore from table Flight. 6. Arrange the contents of the table flight in ascending order of flight no. 7. Display the details of those Flights whose destination is Mumbai. 8. Display the details of those Flights, which are not stopping in-between. 9. Display details of Flights where no flights are not more than 5 in descending order of FL_NO. 10. Display the minimum fare offered by “Indian Airlines”. 11. Display the FL_NO and fare to be paid for the flights from DELHI using the tables FLIGHT and FARE, where fare to be paid = FARE + FARE x TAX/100 12. Count number of flights from Delhi. 13. Find the average fare of Indian Airlines. 14. Count number of flights whose FL_NO starts with “I”. 15. Increase the fare of “Sahara” Airlines by 1000. 16. Delete the record of “India Airlines”. 17. Display FL_NO, STARTING, ENDING from FLIGHT table, AIRLINES, FARE from FARE table according to their matching FL_NO.	<ul style="list-style-type: none"> • Assignment <ul style="list-style-type: none"> ○ SQL (writing SQL commands for the given queries ○ Finding output of SQL commands • Discussion of Scoring Points/ Marking Scheme/ Sample Questions • Inter disciplinary linkage: Mathematics • Core Skills: Problem solving, Creative thinking, Interpersonal Relationship
November Topic: Interface Python with MySQL	<ul style="list-style-type: none"> • Connecting to MySQL from Python • Parameterized queries • Performing insert and update queries 	<ul style="list-style-type: none"> • Data accessing from a table by python • Insertion of data to a table from Python environment • Update data from Python environment 	<ul style="list-style-type: none"> • Assignment <ul style="list-style-type: none"> ○ important questions for connectivity • Discussion of Scoring Points/ Marking Scheme/ Sample Questions • Inter disciplinary linkage: Mathematics • Core Skills: Problem solving, Creative thinking, Interpersonal Relationship

Month/Topic	Theory	Practical/ Project	Miscellaneous
December No. of periods: 40 Topic: Computer Networks	<ul style="list-style-type: none"> • 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 • 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, Repeater, Switch, Gateway, Wi-Fi 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 (Telnet), and Internet Wireless/Mobile Communication protocol such as GSM, CDMA, GPRS, and WLL. • Mobile Telecommunication Technologies: 1G, 2G, 3G and 4G • Electronic mail protocols such as SMTP, POP3, protocols for Chat and Video Conferencing VOIP • Wireless technologies such as Wi-Fi and WiMAX • Network Security Concepts: Threats and prevention from Viruses, Worms, Trojan horse, Spams; Use of Cookies, Protection using Firewall. India IT Act, Cyber Law, Cyber Crimes, IPR issues, hacking. 	-	<ul style="list-style-type: none"> • Assignment <ul style="list-style-type: none"> ○ Communication Technologies • Audio / Video <ul style="list-style-type: none"> ○ Video on Evolution of networking and switching techniques ○ Video on transmission media ○ Video on network devices ○ Video on Network Topologies and types of networks • Discussion of Scoring Points/ Marking Scheme/ Sample Questions • Art Integration <ul style="list-style-type: none"> ○ Draw diagrams to show different types of topologies • Core Skills: Empathy, Interpersonal Relationship

Month/Topic	Theory	Practical/ Project	Miscellaneous
Topic: Communication Technologies	<ul style="list-style-type: none"> 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, Web Servers, Web Hosting, Web Scripting - Client side (VB Script, Java Script, PHP) and Server side (ASP, JSP, PHP), Web 2.0 (for social networking), E-commerce payment transactions using online banking, mobile banking and payment apps and services. 	-	<ul style="list-style-type: none"> Assignment <ul style="list-style-type: none"> Communication Technologies Discussion of Scoring Points/ Marking Scheme/ Sample Questions Core Skills: Empathy, Interpersonal Relationship
December	PERIODIC -2		
January	REVISION & MOCK TEST		
February	REVISION & MOCK TEST		
March	TERM- II Examination		

Curriculum Plan of Physical Education
(Session: 2020-21)

Month Topic	Sub Topic	Audio Visual Inputs	Practical	Miscellaneous
April Topic: Planning in Sports No. of periods:	<ul style="list-style-type: none"> ➤ Meaning & Objectives of Planning ➤ Various Committees & its Responsibilities (pre; during & post) ➤ Tournament – Knock-Out, League Or Round Robin & Combination ➤ Procedure to Draw Fixtures – Knock-Out (Bye & Seeding) & League (Staircase & Cyclic) ➤ Intramural & Extramural – Meaning, Objectives & Its Significance ➤ Specific Sports Programme (Sports Day, Health Run, Run For Fun, Run For Specific Cause & Run For Unity) 	Video on Knock out & League tournament. Specific sports Programme.		<ul style="list-style-type: none"> • Assignment • Discussion of Scoring Points/ Marking Scheme/ Sample Questions
Topic: Sports & Nutrition	<ul style="list-style-type: none"> ➤ Balanced Diet & Nutrition: Macro & Micro Nutrients ➤ Nutritive & Non-Nutritive Components of Diet ➤ Eating for Weight Control – A Healthy Weight, The Pitfalls of Dieting, Food Intolerance & Food Myths 	Video on Balanced Diet		
Topic: Yoga & Lifestyle	<ul style="list-style-type: none"> ➤ Asanas as preventive measures ➤ Obesity: Procedure, Benefits & contraindications for Vajrasana, Hastasana, Trikonasana, Ardh Matsyendrasana ➤ Diabetes: Procedure, Benefits & contraindications for Bhujangasana, Paschimottasana, Pavan Muktasana, Ardh Matsyendrasana ➤ Asthema: Procedure, Benefits & contraindications for Sukhasana, Chakrasana, Gomukhasana, Parvatasana, Bhujangasana, Paschimottasana, Matsyasana ➤ Hypertension: Tadasana, Vajrasana, Pavan Muktasana, ArdhaChakrasana, Bhujangasana, Sharasana ➤ Back Pain: Tadasana, Ardh Matsyendrasana, Vakrasana, Shalabhasana, Bhujangasan 	Video on Procedure, Benefits on yoga with lifetime disease		

Month Topic	Sub Topic	Audio Visual Inputs	Practical	Miscellaneous
Topic: Physical Education & Sports for CWSN (Children With Special Needs - Divyang)	<ul style="list-style-type: none"> ➤ Concept of Disability & Disorder ➤ Types of Disability, its causes & nature (cognitive disability, intellectual disability, physical disability) ➤ Types of Disorder, its cause & nature (ADHD, SPD, ASD, ODD, OCD) Disability Etiquettes ➤ Advantage of Physical Activities for children with special needs ➤ Strategies to make Physical Activities assessable for children with special need 	Video on Differentiations Between Disability & Disorder		<ul style="list-style-type: none"> • Assignment • Discussion of Scoring Points/ Marking Scheme/ Sample Questions
June Topic: Children & Women in Sports	<ul style="list-style-type: none"> ➤ Motor development & factors affecting it ➤ Exercise Guidelines at different stages of growth & Development ➤ Common Postural Deformities - Knock Knee; Flat Foot; Round Shoulders; Lordosis, Kyphosis, Bow Legs and Scoliosis and their corrective measures ➤ Sports participation of women in India ➤ Special consideration (Menarch & Menstrual Disfunction) ➤ Female Athletes Triad (Oestoperosis, Amenoria, Eating Disorders) 	Video on Common Postural deformities in children	Fitness tests administration for all items.	<ul style="list-style-type: none"> • Assignment • Discussion of Scoring Points/ Marking Scheme/ Sample Questions
Topic Test & Measurement in Sports	<ul style="list-style-type: none"> ➤ Motor Fitness Test – 50 M Standing Start, 600 M Run/Walk, Sit & Reach, Partial Curl Up, Push Ups (Boys), Modified Push Ups (Girls), Standing Broad Jump, Agility – 4x10 M Shuttle Run ➤ General Motor Fitness – Barrow three item general motor ability (Standing Broad Jump, Zig Zag Run, Medicine Ball Put – For Boys: 03 Kg & For Girls: 01 Kg) ➤ Measurement of Cardio Vascular Fitness – Harvard Step Test/Rockport Test - Computation of Fitness Index: Duration of the Exercise in Seconds x 100 5.5 x Pulse count of 1-1.5 Min after Exercise ➤ Rikli & Jones - Senior Citizen Fitness Test <ol style="list-style-type: none"> 1. Chair Stand Test for lower body strength 2. Arm Curl Test for upper body strength 3. Chair Sit & Reach Test for lower body flexibility 4. Back Scratch Test for upper body flexibility 5. Eight Foot Up & Go Test for agility 6. Six Minute Walk Test for Aerobic Endurance 	Video on Test & Measurement	Procedure for Asanas, Benefits & Contra-indication for any two Asanas for each lifestyle disease.	<ul style="list-style-type: none"> • Assignment • Discussion of Scoring Points/ Marking Scheme/ Sample Questions

Month Topic	Sub Topic	Audio Visual Inputs	Practical	Miscellaneous
July Topic: Physiology & Injuries in Sports	<ul style="list-style-type: none"> ➤ Physiological factor determining component of Physical Fitness ➤ Effect of exercise on Cardio Respiratory System ➤ Effect of exercise on Muscular System ➤ Physiological changes due to ageing ➤ Sports injuries: Classification (Soft Tissue Injuries:(Abrasion, Contusion, Laceration, Incision, Sprain & Strain) Bone & Joint Injuries: (Dislocation, Fractures: Stress Fracture, Green Stick, Communated, Transverse Oblique & Impacted) Causes, Prevention & treatment ➤ First Aid – Aims & Objectives 	Video on Sports injuries	Procedure for administering Senior Citizen Fitness Test for 5 elderly family members.	<ul style="list-style-type: none"> • Assignment • Discussion of Scoring Points/ Marking Scheme/ Sample Questions
	PERIODIC TEST - 1			•
August Topic: Biomechanics & Sports	<ul style="list-style-type: none"> ➤ Meaning and Importance of Biomechanics in Sports ➤ Types of movements (Flexion, Extension, Abduction & Adduction) ➤ Newton’s Law of Motion & its application in sports ➤ Friction & Sports 	Video on Components of biomechanics	Any one game of your choice out of the list above. Labelled diagram of field & equipment (Rules, Terminologies & Skills).	<ul style="list-style-type: none"> • Assignment • Discussion of Scoring Points/ Marking Scheme/ Sample Questions
September Topic: Psychology & Sports	<ul style="list-style-type: none"> ➤ Personality; its definition & types – Trait & Types (Sheldon & Jung Classification) & Big Five Theory ➤ Motivation, its type & techniques ➤ Exercise Adherence; Reasons to Exercise, Benefits of Exercise ➤ Strategies for Enhancing Adherence to Exercise ➤ Meaning, Concept & Types of Aggressions in Sports 	Video on Big five theory, Aggressions in sports		<ul style="list-style-type: none"> • Assignment • Discussion of Scoring Points/ Marking Scheme/ Sample Questions
	TERM - I EXAMINATION			
October Topic: Training in Sports	<ul style="list-style-type: none"> ➤ Strength – Definition, types & methods of improving Strength – Isometric, Isotonic & Isokinetic ➤ Endurance - Definition, types & methods to develop Endurance – Continuous Training, Interval Training & Fartlek Training 	Video on all types of sports training		

Month Topic	Sub Topic	Audio Visual Inputs	Practical	Miscellaneous
Topic: Training in Sports	<ul style="list-style-type: none"> ➤ Speed – Definition, types & methods to develop Speed – Acceleration Run & Pace Run ➤ Flexibility – Definition, types & methods to improve flexibility ➤ Coordinative Abilities – Definition & types ➤ Circuit Training - Introduction & its importance 			<ul style="list-style-type: none"> • Assignment • Discussion of Scoring Points/ Marking Scheme/ Sample Questions
November	PERIODIC TEST - 2			
December	REVISION & MOCK TEST			
January	REVISION & MOCK TEST			
February	REVISION & MOCK TEST			
March	ANNUAL EXAMINATION			