

ANNUAL
CURRICULUM
PLAN

CLASS XI 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 : rkhatamuniguda.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)
16/08/20 – Odia Debate Sr. (IX – XII)
23/08/20 – 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 ₄	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 5	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.

Fourth Periodic Test : 13 to 19 January, 2021

Sl No.	Date	V	VI	VII	VIII	IX	XI
1	13/01/21	Odia	Science	Maths	Odia	SST	Phy/Geo
2	14/01/21	EVS	Eng	Odia	Science	Eng	Math/Bio/ IP
3	15/01/21	Hindi	Odia	Eng	Comp & Eng	Maths	Chem/ Pol.Sc
4	16/01/21	Maths	Comp & Hindi	Comp & Science	Maths	IT	-----
5	18/01/21	Eng	SST	Hindi	Hindi	Odia/ Hindi	Eng
6	19/01/21	-----	Maths	SST	SST	Science	Com.Sc/ Phy.Ed

Note:

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

Examination Date-Sheet for Term – II, Exam 2020-21 :
10 to 22 March, 2021

Sl No.	Date	V	VI	VII	VIII	IX	XI
1	10/03/2021	Odia	Science	Math	English	Social Science	Math/Bio/ IP
2	12/03/2021	EVS	English	Social Science	Social Science	English	Eng.
3	15/03/2021	----	Com. Science	Odia	Hindi	Hindi/Odia	Phy. Ed
4	17/03/2021	Math	Odia	English	Com. Science	Math 6	Chem/ Pol. Sc.
5	19/03/2021	Hindi	Math	Science	Science	Inform. Techno.	Physics
6	20/03/2021	Eng.	Social Science	Hindi	Math	Science	Com. Sc./ Geo
7	22/03/2021	----	Hindi	Com. Science	Odia	-----	-----

Timing of Examination

Classes V to IX & XI – 09:00 AM to 12:00 NOON

Venue of Examination

Classes V to IX & XI – RKM Ashrama School, Hatamuniguda

Curriculum Plan of English Core
(Session: 2020-21)

Month Topic	Theme/Audio Visual Inputs	Assignment /Discussion	Listening, Speaking, Reading and Writing Skills	Core Skills/Art Integration/ Interdisciplinary Linkages
May Topic: The Portrait of a Lady No. of Periods: 06	Understanding the Genre Literary appreciation Central Idea Plot, Protagonists, Characters	<ul style="list-style-type: none"> • Assignment on The Portrait of a Lady • Discussion of Scoring Points/ Marking Scheme/Sample Questions 	Short review/ dramatization of the story	Selflessness, Kindness, Respect & Acceptance.
Topic: A Photograph No. of Periods: 05	Poetic Appreciation Rhyme Scheme Poetic Devices Central Idea	<ul style="list-style-type: none"> • Assignment on: A Photograph • Discussion of Scoring Points/ Marking Scheme/Sample Questions 	Critical evaluation of the theme conveyed by the poet	Transience of human life, death, and mysteries surrounding them.
Topic: The Summer of the Beautiful White Horse No. of Periods: 06	Understanding the Genre Literary appreciation Central Idea Plot, Protagonists, Characters	<ul style="list-style-type: none"> • Assignment on The Summer of the Beautiful White Horse • 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	Truthfulness, Pure Conscience & Integrity.
June				
Topic: We're Not Afraid to Die...If We Can All Be Together No. of Periods: 06	Understanding the Genre Literary appreciation Central Idea Plot, Protagonists, Characters	<ul style="list-style-type: none"> • Assignment on We're Not Afraid to Die...If we Can All Be Together. • 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	Virtue of courage, optimism & togetherness in the face of adversity.
Topic: The Laburnum Top No. of Periods: 06	Poetic Appreciation Rhyme Scheme Poetic Devices Central Idea	<ul style="list-style-type: none"> • Assignment on The Laburnum Top • Discussion of Scoring Points/ Marking Scheme/Sample Questions 	Commentary on the central idea conveyed through the poem	Challenges of life.

Month Topic	Theme/Audio Visual Inputs	Assignment /Discussion	Listening, Speaking, Reading and Writing Skills	Core Skills/Art Integration/ Interdisciplinary Linkages
Topic: The Address No. of Periods: 06	Understanding the Genre Literary appreciation Central Idea Plot, Protagonists, Characters	<ul style="list-style-type: none"> • Assignment on The Address • Discussion of Scoring Points/ Marking Scheme/Sample Questions 	Silent reading of prescribed/ selected texts for comprehension	Destruction, pain & loss of lives caused by War.
Topic: Writing Section No. of Periods: 04	Notice Writing, Formal Letter – Letter to the Editor	<ul style="list-style-type: none"> • Assignment on Notice & Letter • Discussion of Scoring Points/ Marking Scheme/Sample Questions 	Write notices & letters for school events/processes to develop writing skills.	Art of writing & clarity of thoughts.
Topic: The Canterville Ghost Introduction No. of Periods:03 Chapter-1 No. of Periods:03	Understanding the Genre Literary appreciation Central Idea Plot, Protagonists, Characters	<ul style="list-style-type: none"> • Assignment on The Canterville Ghost • Discussion of Scoring Points/ Marking Scheme/Sample Questions 	Silent reading of prescribed/ selected texts for comprehension	Rational outlook & Dismissal of superstition.
July Topic: Discovering Tut: the Saga Continues No. of Periods: 06	Understanding the Genre Literary appreciation Central Idea Plot, Protagonists, Characters	<ul style="list-style-type: none"> • Assignment on Discovering Tut: the Saga Continues • Discussion of Scoring Points/ Marking Scheme/Sample Questions 	Language learning activities such as role-play, dramatization, group discussion, writing, etc.	Mystery surrounding the life and death of Egyptian ruler Tutankhamun.
Topic: The Voice of the Rain No. of Periods: 06	Poetic Appreciation Rhyme Scheme Poetic Devices Central Idea	<ul style="list-style-type: none"> • Assignment on The Voice of the Rain • Discussion of Scoring Points/ Marking Scheme/Sample Questions 	Silent reading of prescribed/ selected texts for comprehension	Rain and its natural-cycle for the benefit of earth and the life it supports
Topic: Albert Einstein at School No. of Periods: 06	Understanding the Genre Literary appreciation Central Idea Plot, Protagonists, Characters	<ul style="list-style-type: none"> • Assignment on Albert Einstein at School • Discussion of Scoring Points/ Marking Scheme/Sample Questions 	Encouraging students to role- play as various characters to interact with one another	Unconventional education system.
Topic: Writing Section No. of Periods: 03	Article Writing	<ul style="list-style-type: none"> • Assignment on Article • Discussion of Scoring Points/ Marking Scheme/Sample Questions 	Express opinions, facts & arguments	Art of writing & clarity of thoughts

Topic: The Canterville Ghost Chapter-2 & 3 No. of Periods:06	Understanding the Genre Literary appreciation Central Idea Plot, Protagonists, Characters	<ul style="list-style-type: none"> • Assignment on The Canterville Ghost • Discussion of Sample Questions 	Language learning activities such as role-play, dramatization, group discussion, writing, etc.	Cleverness, determination.
		PERIODIC TEST - 1		
August Topic: Landscape of the Soul No. of Periods: 06	Understanding the Genre Literary appreciation Central Idea Plot, Protagonists, Characters	<ul style="list-style-type: none"> • Assignment on Landscape of the Soul • Discussion of Scoring Points/ Marking Scheme/Sample Questions 	Critical evaluation of the plot, storyline and characters	Study of European and Chinese paintings & subtleties of reality and art.
Topic: Childhood No. of Periods: 06	Poetic Appreciation Rhyme Scheme Poetic Devices Central Idea	<ul style="list-style-type: none"> • Assignment on Childhood • Discussion of Scoring Points/ Marking Scheme/Sample Questions 	Appreciating the idea conveyed through the poem.	Innocence of Childhood and rationality & hypocrisy of adulthood.
Topic: Ranga's Marriage No. of Periods: 06	Understanding the Genre Literary appreciation Central Idea Plot, Protagonists, Characters	<ul style="list-style-type: none"> • Assignment on Ranga's Marriage • Discussion of Scoring Points/Marking Scheme/Sample Questions 	Group and pair activities like group discussion etc.	Conflict between tradition & modernity.
Topic: Writing Section No. of Periods: 03	Advertisements, Debate Writing	<ul style="list-style-type: none"> • Assignment on Debate • Discussion of Scoring Points/Marking Scheme/Sample Questions 	Express opinions, facts, arguments in the form of a debate	Art of writing & clarity of thoughts
Topic: Reading Section No. of Periods: 02	Unseen Passage (Note Making)	<ul style="list-style-type: none"> • Assignment on Reading Comprehension • Discussion of Scoring Points/ Marking Scheme/Sample Questions 	Reading of prescribed/selected text for comprehension	Skill of Reading & Comprehension
September Topic: The Ailing Planet - The Green Movement's Role No. of Periods: 06	Understanding the Genre Literary appreciation Central Idea Plot, Protagonists, Characters	<ul style="list-style-type: none"> • Assignment on The Ailing Planet-The Green Movement's Role • Discussion of Scoring Points/ Marking Scheme/Sample Questions 	Role playing as authors/ poets/ dramatists to defend their works and characters	Man's greed & exploitation of earth's resources.

Month Topic	Theme/Audio Visual Inputs	Assignment /Discussion	Listening, Speaking, Reading and Writing Skills	Core Skills/Art Integration/ Interdisciplinary Linkages
Topic: The Canterville Ghost Chapter-4 No. of Periods:03	Understanding the Genre Literary appreciation Central Idea Plot, Protagonists, Characters	<ul style="list-style-type: none"> • Assignment on The Canterville Ghost • Discussion of Sample Questions 	Encouraging students to role- play as various characters to interact with one another	Frustration & repeated efforts.
TERM –I EXAMINATION AND ASL				
October Topic: Mother’s Day No. of Periods: 06	Poetic Appreciation Rhyme Scheme Poetic Devices Central Idea	<ul style="list-style-type: none"> • Assignment on Mother’s Day • Discussion of Scoring Points/Marking Scheme/Sample Questions 	General discussion of the theme conveyed by the poet	Status of women in a household and her love, devotion & sincerity towards the members of her family.
Topic: The Browning Version No. of Periods: 06	Understanding the Genre Literary appreciation Central Idea Plot, Protagonists, Characters	<ul style="list-style-type: none"> • Assignment on The Browning Version • Discussion of Scoring Points/Marking Scheme/Sample Questions 	Dramatizing incidents from the story	National identity of a person.
Topic: Writing Section No. of Periods: 02	Speech Writing	<ul style="list-style-type: none"> • Assignment on Speech • Discussion of Scoring Points/Marking Scheme/Sample Questions 	Develop writing skills & creativity in students.	Art of writing & clarity of thoughts
Topic: Reading Section No. of Periods: 02	Unseen Passage (Note Making)	<ul style="list-style-type: none"> • Assignment on Reading Comprehension • Discussion of Scoring Points/Marking Scheme/Sample Questions 	Reading of prescribed/ selected text for comprehension	Skill of Reading & Comprehension
Topic: The Canterville Ghost Chapter-5 & 6 No. of Periods:06	Understanding the Genre Literary appreciation Central Idea Plot, Protagonists, Characters	<ul style="list-style-type: none"> • Assignment on The Canterville Ghost • Discussion of Sample Questions 	Group and pair activities like group discussion etc.	Compassion, sympathy & prayer for redemption.

Month Topic	Theme/Audio Visual Inputs	Assignment /Discussion	Listening, Speaking, Reading and Writing Skills	Core Skills/Art Integration/ Interdisciplinary Linkages
November Topic: The Adventure No. of Periods: 06	Understanding the Genre Literary appreciation Central Idea Plot, Protagonists, Characters	<ul style="list-style-type: none"> • Assignment on The Adventure • Discussion of Scoring Points/Marking Scheme/Sample Questions 	Critical evaluation of the plot, storyline and characters	History of British India.
Topic: Father to Son No. of Periods: 06	Poetic Appreciation Rhyme Scheme Poetic Devices Central Idea	<ul style="list-style-type: none"> • Assignment on Father to Son • Discussion of Scoring Points/Marking Scheme/Sample Questions 	Extrapolating the theme conveyed by the poet	Generation gap and lack of communication
Topic: Birth No. of Periods: 06	Understanding the Genre Literary appreciation Central Idea Plot, Protagonists, Characters	<ul style="list-style-type: none"> • Assignment on Birth • Discussion of Scoring Points/Marking Scheme/Sample Questions 	Making an audio story out of the text to be read aloud	Significance of Call of Duty in one's life.
Topic: Writing Section No. of Periods: 02	Report Writing	<ul style="list-style-type: none"> • Assignment on Report • Discussion of Scoring Points/Marking Scheme/Sample Questions 	Express opinions, facts, arguments in the form of a report	Art of writing & clarity of thoughts
December Topic: Silk Road No. of Periods: 06	Understanding the Genre Literary appreciation Central Idea Plot, Protagonists, Characters	<ul style="list-style-type: none"> • Assignment on Silk Road • Discussion of Scoring Points/Marking Scheme/Sample Questions 	Short review/ dramatization of the story	Ancient trade routes
Topic: The Tale of Melon City No. of Periods: 06	Understanding the Genre Literary appreciation Central Idea Plot, Protagonists, Characters	<ul style="list-style-type: none"> • Assignment on The Tale of Melon City • Discussion of Scoring Points/Marking Scheme/Sample Questions 	Critical evaluation of the theme conveyed by the poet	Ancient system of Kingdom rule.
Topic: Ghat of the Only World No. of Periods: 06	Understanding the Genre Literary appreciation Central Idea Plot, Protagonists, Characters	<ul style="list-style-type: none"> • Assignment on Ghat of the Only World • 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	Friendship & Commitment

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: 02	Poster Making	<ul style="list-style-type: none"> • Assignment on Poster • Discussion of Scoring Points/Marking Scheme/Sample Questions 	Develop writing skills & creativity in students.	Art of writing & clarity of thoughts
Topic: Reading Section No. of Periods: 02	Unseen Passage (Note Making)	<ul style="list-style-type: none"> • Assignment on Reading Comprehension • Discussion of Scoring Points/Marking Scheme/Sample Questions 	Reading of prescribed/selected text for comprehension	Skill of Reading & Comprehension
Topic: The Canterville Ghost Chapter-7 No. of Periods:03	Understanding the Genre Literary appreciation Central Idea Plot, Protagonists, Characters	<ul style="list-style-type: none"> • Assignment on The Canterville Ghost • Discussion of Sample Questions 	Critical evaluation of the plot, storyline and characters	Love & gratefulness.
	PERIODIC TEST – 2			
December	REVISION & PRACTICE			
January	REVISION & PRACTICE			
February	REVISION & PRACTICE			
March	TERM- II Examination and ASL			

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
July Topic: Physical World. No. of Periods: 02	Physics-scope and excitement; nature of physical laws; Physics, technology and society.	Video • Physics scope and excitement, Applications of dimensional analysis	Interdisciplinary Linkage: Math's Diagrams: Fig 2.1, 2.2, 2.3 (N.C.E.R.T Part 1) Art Integration: Draw diagrams of ways of measurement of length and weight	Practical • To measure diameter of a small spherical/cylindrical body and to measure internal diameter and depth of a given beaker/calorimeter using Vernier Calipers and hence find its volume. • To measure diameter of a given wire and thickness of a given sheet using screw gauge. • To determine volume of an irregular lamina-using screw gauge. • To determine radius of curvature of a given spherical surface by a spherometer.	<ul style="list-style-type: none"> • Assignment <ul style="list-style-type: none"> ○ Physical World ○ Units and Measurements • Discussion of Scoring Points/ Marking Scheme/ Sample Questions
Topic: Units and Measurements No. of Periods: 08	Need for measurement: Units of measurement; systems of units; SI units, fundamental and derived units. Length, mass and time measurements; accuracy and precision of measuring instruments; errors in measurement; significant figures. Dimensions of physical quantities, dimensional analysis and its applications.				
Topic: Mechanical Properties of Solids No. of Periods: 05	Elastic behaviour, Stress-strain relationship, Hooke's law, Young's modulus, bulk modulus, shear modulus of rigidity, Poisson's ratio; elastic energy.		Interdisciplinary Linkage: Math's Diagrams: Fig 9.1, 9.2, 9.3, 9.7 Art Integration: Draw graph to show the variation of stress v/s strain	Practical • To determine Young's modulus of elasticity of the material of a given wire. To find the force constant of a helical spring by plotting a graph between load and extension.	<ul style="list-style-type: none"> • Assignment <ul style="list-style-type: none"> ○ Mechanical Properties of Solids • Discussion of Scoring Points/ Marking Scheme/ Sample Questions

August Topic: Motion in a Straight Line No. of Periods: 05	Frame of reference, Motion in a straight line: Position-time graph, speed and velocity. Elementary concepts of differentiation and integration for describing motion, uniform and non-uniform motion, average speed and instantaneous velocity, Uniformly accelerated motion, velocity - time and position-time graphs. Relations for uniformly accelerated motion (graphical treatment).	Video <ul style="list-style-type: none"> Types of vectors, Relative velocity, Projectile motion 	Interdisciplinary Linkage: Math's Diagrams: Fig 3.2, 3.3, 3.4, 3.6, 3.9, 3.10, 3.16, 3.17 Art Integration: Draw velocity and position time graphs for acceleration	Practical <ul style="list-style-type: none"> To determine the mass of two different objects using a beam balance. To find the weight of a given body using parallelogram law of vectors. Using a simple pendulum, plot L-T and L-T² graphs. Hence find the effective length of second's pendulum using appropriate graph. To study variation of time period of a simple pendulum by changing its length and taking bobs of different masses independently and interpret the result. 	<ul style="list-style-type: none"> Assignment <ul style="list-style-type: none"> Motion in a Straight Line Discussion of Scoring Points/ Marking Scheme/ Sample Questions
Topic: Mechanical Properties of Fluids No. of Periods: 05	Pressure due to a fluid column; Pascal's law and its applications (hydraulic lift and hydraulic brakes), effect of gravity on fluid pressure. Viscosity, Stokes' law, terminal velocity, streamline and turbulent flow, critical velocity, Bernoulli's theorem and its applications. Surface energy and surface tension, angle of contact, excess of pressure across a curved surface, application of surface tension ideas to drops, bubbles and capillary rise.	Video Types of Modulus, Pascal's law and its applications Video Surface energy and Surface tension, Capillarity	Interdisciplinary Linkage: Math's Diagrams: Fig 10.1, 10.2, 10.6, 10.9, 10.10, 10.14, 10.21 Art Integration: Draw diagrams of Bernoulli's Theorem and angle of contact across a curved surface	Practical <ul style="list-style-type: none"> To determine the surface tension of water by capillary rise method. To study the variation in volume with pressure for a sample of air at constant temperature by plotting graphs between P and V, and between P and I/V. 	<ul style="list-style-type: none"> Assignment <ul style="list-style-type: none"> Mechanical Properties of Fluids 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: Motion in a Plane No. of Periods: 10	Scalar and vector quantities; position and displacement vectors, general vectors and their notations; equality of vectors, multiplication of vectors by a real number; addition and subtraction of vectors, relative velocity, Unit vector; resolution of a vector in a plane, rectangular components, Scalar and Vector product of vectors.		Interdisciplinary Linkage: Math’s Diagrams: Fig 4.6, 4.9, 4.10, 4.18 Art Integration: Draw notation of all types of vectors		<ul style="list-style-type: none">• Assignment<ul style="list-style-type: none">○ Motion in a Plane• Discussion of Scoring Points/ Marking Scheme/ Sample Questions
Topic: Motion in a Plane No. of Periods: 05	Motion in a plane, cases of uniform velocity and uniform acceleration projectile motion, uniform circular motion.	Video <ul style="list-style-type: none">• Circular motion	Interdisciplinary Linkage: Math’s Diagrams: Fig 4.19 Art Integration: Draw diagram of circular motion		
September	TERM I EXAMINATION				
October Topic: Laws of Motion No. of Periods: 14	Intuitive concept of force, Inertia, Newton's first law of motion; momentum and Newton's second law of motion; impulse; Newton's third law of motion. Law of conservation of linear momentum and its applications. Equilibrium of concurrent forces, Static and kinetic friction, laws of friction, rolling friction, lubrication. Dynamics of uniform circular motion: Centripetal force, examples of circular motion (vehicle on a level circular road, vehicle on a banked road).	Video <ul style="list-style-type: none">• Conservation of momentum and its applications, Friction, Examples of circular motion.	Interdisciplinary Linkage: Math’s Diagrams: Fig 5.11, 5.12, 5.14 Art Integration: Draw diagrams of vertical e circular motion	Practical <ul style="list-style-type: none">• To study the relationship between force of limiting friction and normal reaction and to find the coefficient of friction between a block and a horizontal surface	<ul style="list-style-type: none">• Assignment<ul style="list-style-type: none">○ Laws of Motion• 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: Thermal Properties of Matter No. of Periods: 09	Heat, temperature, thermal expansion; thermal expansion of solids, liquids and gases, anomalous expansion of water; specific heat capacity; Cp, Cv - calorimetry; change of state - latent heat capacity. Heat transfer-conduction, convection and radiation, thermal conductivity, qualitative ideas of Blackbody radiation, Wein's displacement Law, Stefan's law, Greenhouse effect.	Video Heat transfer and its types, Blackbody radiation, Greenhouse effect	Interdisciplinary Linkage: Math's and Chemistry Diagrams: Fig 11.7, 11.9, 11.12 Art Integration: Draw graphs of variations of thermal properties of solid liquid and gases	Practical • To determine the coefficient of viscosity of a given viscous liquid by measuring terminal velocity of a given spherical body. • To study the relationship between the temperature of a hot body and time by plotting a cooling curve. To determine specific heat capacity of a given (i) Solid, (ii) liquid, by method of mixtures.	• Assignment <ul style="list-style-type: none"> Thermal Properties of Matter Discussion of Scoring Points/ Marking Scheme/ Sample Questions
December Topic: Work, Energy and Power No. of Periods: 12	Work done by a constant force and a variable force; kinetic energy, work energy theorem, power. Notion of potential energy, potential energy of a spring, conservative forces: conservation of mechanical energy (kinetic and potential energies); non-conservative forces: motion in a vertical circle; elastic and inelastic collisions in one and two dimensions.	• Video Conservation of mechanical energy, Collisions and its types.	Interdisciplinary Linkage: Math's Diagrams: Fig 6.1, 6.3, 6.7, 6.8, 6.9 Art Integration: Draw diagrams of pot. energy of spring and conservative forces		• Assignment <ul style="list-style-type: none"> Work, Energy and Power • Discussion of Scoring Points/ Marking Scheme/ Sample Questions

Topic: System of Particles and Rotational Motion No. of Periods: 09	Centre of mass of a two-particle system, momentum conservation and centre of mass motion. Centre of mass of a rigid body; centre of mass of a uniform rod. Moment of a force, torque, angular momentum, law of conservation of angular momentum and its applications. Equilibrium of rigid bodies, rigid body rotation and equations of rotational motion, comparison of linear and rotational motions.	Video • Conservation of angular momentum and its applications	Interdisciplinary Linkage: Math's Diagrams: Fig 7.2, 7.14, 7.25, 7.1, 7.30, 7.31, 7.32, 7.33, 7.37 Art Integration: Draw diagrams of applications of moment of inertia		<ul style="list-style-type: none"> • Assignment <ul style="list-style-type: none"> ◦ System of Particles and Rotational Motion • Discussion of Scoring Points/ Marking Scheme/ Sample Questions
Topic: Thermo-dynamics No. of Periods: 06	Thermal equilibrium and definition of temperature (zeroth law of thermodynamics), heat, work and internal energy. First law of thermodynamics, isothermal and adiabatic processes. Second law of thermodynamics: reversible and irreversible processes, Heat engine and refrigerator.	Video • Isothermal and Adiabatic processes, Heat engine and refrigerator	Interdisciplinary Linkage: Math's and Chemistry Diagrams: Fig 12.4, 12.7, 12.8, 12.10, 12.12 Art Integration: Draw diagrams of cannot cycle and heat engine		<ul style="list-style-type: none"> • Assignment <ul style="list-style-type: none"> ◦ Thermo-dynamics • Discussion of Scoring Points/ Marking Scheme/ Sample Questions
January Topic: System of Particles and Rotational Motion No. of Periods: 10	Moment of inertia, radius of gyration, values of moments of inertia for simple geometrical objects (no derivation). Statement of parallel and perpendicular axes theorems and their applications.	Video • Moment of Inertia			<ul style="list-style-type: none"> • Assignment <ul style="list-style-type: none"> ◦ System of Particles and Rotational Motion • Discussion of Scoring Points/ Marking Scheme/ Sample Questions
Topic: Kinetic Theory No. of Periods: 08	Equation of state of a perfect gas, work done in compressing a gas. Kinetic theory of gases - assumptions, concept of pressure. Kinetic interpretation of temperature; rms speed of gas molecules; degrees of freedom, law of equipartition of energy (statement only) and application to specific heat capacities of gases; concept of mean free path, Avogadro's number.		Interdisciplinary Linkage: Chemistry		<ul style="list-style-type: none"> • Assignment <ul style="list-style-type: none"> ◦ Kinetic Theory • 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
February Topic: Gravitation No. of Periods: 12	Kepler's laws of planetary motion, universal law of gravitation. Acceleration due to gravity and its variation with altitude and depth. Gravitational potential energy and gravitational potential, escape velocity, orbital velocity of a satellite, Geo-stationary satellites.	Video • Kepler's laws of planetary motion, Satellites.	Interdisciplinary Linkage: Math's Diagrams: Fig 8.2, 8.7, 8.8, 8.11 Art Integration: Draw diagrams to show how factors of acceleration due to gravity affected by height, depth and escape velocity	Practical • To find the downward force, along an inclined plane, acting on a roller due to Gravitational pull of the earth and study its relationship with the angle of inclination θ by plotting graph between force and $\sin \theta$.	<ul style="list-style-type: none"> • Assignment <ul style="list-style-type: none"> ◦ Gravitation • Discussion of Scoring Points/ Marking Scheme/ Sample Questions
Topic: Oscillations No. of Periods: 20	Periodic motion - time period, frequency, displacement as a function of time, periodic functions. Simple harmonic motion (S.H.M) and its equation; phase; oscillations of a loaded spring-restoring force and force constant; energy in S.H.M. Kinetic and potential energies; simple pendulum derivation of expression for its time period. Free, forced and damped oscillations (qualitative ideas only), resonance.	Video • Free, forced and damped oscillations, Resonance, Transverse and Longitudinal waves, Beats and Doppler effect.	Interdisciplinary Linkage: Math's	Practical <ul style="list-style-type: none"> • To study the relation between frequency and length of a given wire under constant tension using sonometer. • To study the relation between the length of a given wire and tension for constant frequency using sonometer. • To find the speed of sound in air at room temperature using a resonance tube by two resonance positions. 	<ul style="list-style-type: none"> • Assignment <ul style="list-style-type: none"> ◦ Oscillations • Discussion of Scoring Points/ Marking Scheme/ Sample Questions
Topic: Waves No. of Periods: 14	Wave motion: Transverse and longitudinal waves, speed of travelling wave, displacement relation for a progressive wave, principle of superposition of waves, reflection of waves, standing waves in strings and organ pipes, fundamental mode and harmonics, Beats, Doppler effect.		Interdisciplinary Linkage: Math's Diagrams: Fig 15.8, 15.11, 15.12, 15.13, 15.15.16 Art Integration: Draw wave diagrams of superposition, standing waves modes and beats		<ul style="list-style-type: none"> • Assignment <ul style="list-style-type: none"> ◦ Waves • Discussion of Scoring Points/ Marking Scheme/ Sample Questions

TERM- II 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: Some Basic Concepts of Chemistry No. of Periods: 12	General Introduction: Importance and scope of chemistry. Nature of matter, laws of chemical combination, Dalton's atomic theory: concept of elements, atoms and molecules. Atomic and molecular masses, mole concept and molar mass, percentage composition, empirical and molecular formula, chemical reactions, stoichiometry and calculations based on stoichiometry	Videos on different laws of chemical combination.	Interdisciplinary Linkage: Math's Art integration: Drawing flowcharts on matter and its types, Chemistry and its branches.	Practical: Basic Laboratory Techniques 1. Cutting glass tube and glass rod 2. Bending a glass tube 3. Drawing out a glass jet 4. Boring a cork	1. Assignment on Some Basic Concepts of Chemistry 2. Discussion of Scoring Points/ Marking Scheme/ Sample Questions
Topic: Structure of Atom No. of Periods: 14	Bohr's model and its limitations, concept of shells and subshells, dual nature of matter and light, de Broglie's relationship, Heisenberg uncertainty principle, concept of orbitals, quantum numbers, shapes of s, p and d orbitals, rules for filling electrons in orbitals - Aufbau principle, Pauli's exclusion principle and Hund's rule, electronic configuration of atoms, stability of half-filled and completely filled orbitals.	Videos on quantum numbers, shells, orbitals and sub shells, Aufbau's principle, Hund's rule and Pauli's exclusion principle	Interdisciplinary Linkage: Physics and Math's. Diagrams: Fig 2.9, 2.13, 2.14, 2.15, 2.17. (NCERT part 1) Art Integration: Drawing structures of different orbitals.	Practical: Characterization and Purification of Chemical Substances (a) Crystallization of impure sample of any one of the following: Alum, Copper Sulphate, Benzoic Acid.	1. Assignment on Structure of atom. 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
June Topic: Classification of Elements and Periodicity in Properties No. of Periods: 8	Modern periodic law and the present form of periodic table, periodic trends in properties of elements -atomic radii, ionic radii, inert gas radii, Ionization enthalpy, and electron gain enthalpy, electronegativity, valency. Nomenclature of elements with atomic number greater than 100	Video on trends in periodic properties.	Interdisciplinary Linkage: Inorganic Chemistry. Diagrams: Fig 3.2, table 3.4, table 3.5, fig 3.4, 3.5, 3.6, 3.7.	Practical: Characterization and Purification of Chemical Substances (a) Determination of melting point of an organic compound. (b) Determination of boiling point of an organic compound.	1. Assignment on Classification of Elements and Periodicity in Properties 2. Discussion of Scoring Points/ Marking Scheme/ Sample Questions
Topic: Chemical Bonding and Molecular structure No. of Periods: 14	Valence electrons, ionic bond, covalent bond, bond parameters, Lewis structure, polar character of covalent bond, covalent character of ionic bond, valence bond theory, resonance, geometry of covalent molecules, VSEPR theory, concept of hybridization, involving s, p and d orbitals and shapes of some simple molecules, molecular orbital theory of homonuclear diatomic molecules (Qualitative idea only), hydrogen bond.	Videos on valence bond theory and VSEPR Theory.	Interdisciplinary Linkage: Art Diagrams: Fig 4.1, 4.2, 4.6, table: 4.6, 4.7, 4.8, Fig:4.7, 4.8, 4.9, 4.10, 4.14, 4.15, 4.18, 4.19, 4.20 (NCERT part 1) Art Integration: Drawing molecular orbital diagram.	Practical: 1. Revision of practical 2. Discussion of different topics to be used as investigatory projects.	1. Assignment on Chemical bonding and Molecular structure. 2. Discussion of Scoring Points/ Marking Scheme/ Sample Questions
July Topic: Gases and Liquids No. of Periods: 12	Three states of matter, intermolecular interactions, types of bonding, melting and boiling points, role of gas laws in elucidating the concept of the molecule, Boyle's law, Charles law, Gay Lussac's law, Avogadro's law, ideal behaviour, empirical derivation of gas equation, Avogadro's number, ideal gas equation. Deviation from ideal behaviour, liquefaction of gases, critical temperature, kinetic energy and molecular speeds (elementary idea)	Video on different gas laws.	Interdisciplinary Linkage: Physics Diagrams: Fig 5.1, 5.2, 5.5, 5.6, 5.7, 5.8, 5.9, 5.10, 5.11, 5.13, 5.14. Art Integration: Drawing graphs of different gas laws and to explain critical temperature of gases.	Practical: Quantitative Estimation i) Using a chemical balance. ii) Preparation of standard solution of Oxalic acid. iii) Determination of strength of a given solution of Sodium Hydroxide by	1. Assignment on States of matter. 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
	Liquid State: vapour pressure, viscosity and surface tension (qualitative idea only, no mathematical derivations)			titrating it against standard solution of Oxalic acid. iv) Preparation of standard solution of Sodium Carbonate. v) Determination of strength of a given solution of Hydrochloric acid by titrating it against standard Sodium Carbonate solution.	
Topic: Chemical Thermo-dynamics No. of Periods: 16	Concepts of System and types of systems, surroundings, work, heat, energy, extensive and intensive properties, state functions. First law of thermodynamics -internal energy and enthalpy, heat capacity and specific heat, measurement of ΔU and ΔH , Hess's law of constant heat summation, enthalpy of bond dissociation, combustion, formation, atomization, sublimation, phase transition, ionization, solution and dilution. Second law of Thermodynamics (brief introduction). Introduction of entropy as a state function, Gibb's energy change for spontaneous and non- spontaneous processes, criteria for equilibrium. Third law of thermodynamics (brief Introduction).	Video on system and types of system.	Interdisciplinary Linkage: Math's and Physics.	Practical: 1. Revision of practical 2. Collection of data regarding the investigatory project.	1. Assignment on Chemical thermodynamics. 2. Discussion of Scoring Points/ Marking Scheme/ Sample Questions
			PERIODIC TEST - 1		3.
August Topic: Equilibrium	Equilibrium in physical and chemical processes, dynamic nature of equilibrium,	Video on Le-Chatelier's principle and	Interdisciplinary Linkage: Math's and Physics	Practical: Experiments based on pH (a) Any one of the following experiments:	1. Assignment on Equilibrium.

Month Topic	Sub Topic	Audio Visual Inputs	Concept Maps / Diagrams/ Interdisciplinary Linkages/ Art Integration	Practical/ Investigatory Project	Assignment / Discussion
No. of Periods: 14	law of mass action, equilibrium constant, factors affecting equilibrium- Le Chatelier's principle, ionic equilibrium- ionization of acids and bases, strong and weak electrolytes, degree of ionization, ionization of poly basic acids, acid strength, concept of pH, Henderson Equation, hydrolysis of salts (elementary idea), buffer solution, solubility product, common ion effect (with illustrative examples).	pH.	Diagrams: Fig 7.2, 7.4, 7.5, 7.6, 7.7, 7.8.	<ul style="list-style-type: none"> • Determination of pH of some solutions obtained from fruit juices, solution of known and varied concentrations of acids, bases and salts using pH paper or universal indicator. • Comparing the pH of solutions of strong and weak acids of same concentration. • Study the pH change in the titration of a strong base using universal indicator. <p>(b) Study the pH change by common-ion in case of weak acids and weak bases.</p> <p>D. Chemical Equilibrium One of the following experiments:</p> <p>a) Study the shift in equilibrium between ferric ions and thiocyanate ions by increasing/decreasing the concentration of either of the ions.</p> <p>b) Study the shift in equilibrium between $[\text{Co}(\text{H}_2\text{O})_6]^{2+}$ and chloride ions by changing the concentration of either of the ions.</p> <p>Project Report: Final Submission</p>	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: Redox Reactions No. of Periods: 06	Concept of oxidation and reduction, redox reactions, oxidation number, balancing redox reactions, in terms of loss and gain of electrons and change in oxidation number, applications of redox reactions.	Video on electrochemical cell.	Interdisciplinary Linkage: Physics	Practical: Revision of practical.	1. Assignment on redox reactions. 2. Discussion of Scoring Points/ Marking Scheme/ Sample Questions
			TERM-I EXAMINATION		3.
October Topic: Hydrogen No. of Periods: 08	Position of hydrogen in periodic table, occurrence, isotopes, preparation, properties and uses of hydrogen, hydrides-ionic covalent and interstitial; physical and chemical properties of water, heavy water, hydrogen peroxide preparation, reactions and structure and use; hydrogen as a fuel.	Video to show applications of hydrogen.	Interdisciplinary Linkage: Art Diagrams: Fig 9.1, 9.3 (NCERT part 2)	Practical: Qualitative Analysis (a) Determination of one anion and one cation in a given salt Cations- Pb^{2+} , Cu^{2+} , Al^{3+} , Fe^{3+} , Mn^{2+} , Ni^{2+} , Zn^{2+} , Co^{2+} , Ca^{2+} , Sr^{2+} , Ba^{2+} , Mg^{2+} , $[\text{NH}_4]^+$ Anions – $[\text{CO}_3]^{2-}$, S^{2-} , $[\text{SO}_3]^{2-}$, $[\text{SO}_4]^{2-}$, $[\text{NO}_3]^-$, Cl^- , Br^- , I^- , $[\text{PO}_4]^{3-}$, $[\text{C}_2\text{O}_4]^{2-}$, CH_3COO^- (Note: Insoluble salts excluded) (b) Detection of -Nitrogen, Sulphur, Chlorine in organic compounds.	1. Assignment on Hydrogen. 2. Discussion of Scoring Points/ Marking Scheme/ Sample Questions
Topic: s-Block Elements (Alkali and Alkaline Earth Metals) No. of Periods: 10	Group 1 and Group 2 Elements General introduction, electronic configuration, occurrence, anomalous properties of the first element of each group, diagonal relationship, trends in the variation of properties (such as ionization enthalpy, atomic and ionic radii), trends in chemical reactivity with oxygen, water, hydrogen and halogens, uses. Preparation and Properties of Some	Videos to show compounds of sodium.	Art Integration: Drawing structures of BeCl_2	Practical: Revision of practical.	1. Assignment on s- 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
	Important Compounds: Sodium Carbonate, Sodium Chloride, Sodium Hydroxide and Sodium Hydrogen carbonate, Biological importance of Sodium and Potassium. Calcium Oxide and Calcium Carbonate and their industrial uses, biological importance of Magnesium and Calcium.				
November Topic: p - Block Elements No. of Periods: 14	General Introduction to p -Block Elements Group 13 Elements: General introduction, electronic configuration, occurrence, variation of properties, oxidation states, trends in chemical reactivity, anomalous properties of first element of the group, Boron - physical and chemical properties, some important compounds, Borax, Boric acid, Boron Hydrides, Aluminium: Reactions with acids and alkalis, uses. Group 14 Elements: General introduction, electronic configuration, occurrence, variation of properties, oxidation states, trends in chemical reactivity, anomalous behaviour of first elements. Carbon-catenation, allotropic forms, physical and chemical properties; uses of some important compounds: oxides. Important compounds of Silicon and a few uses: Silicon Tetrachloride, Silicones, Silicates and Zeolites, their uses.	Video to show structure of Borax, silicones etc.	Interdisciplinary Linkage: Art Diagrams: Fig 11.3, 11.4, 11.5, 11.6, 11.7 (NCERT part 2) Art Integration: Drawing structures of borax, silicones.	Practical: Revision of practical	1. Assignment on p-block elements. 2. Discussion of Scoring Points/ Marking Scheme/ Sample Questions
Topic: Organic Chemistry - Some Basic Principles and Techniques No. of Periods: 14	General introduction, methods of purification, qualitative and quantitative analysis, classification and IUPAC nomenclature of organic compounds. Electronic displacements in a covalent bond: inductive effect, electrometric effect, resonance and hyper conjugation. Homolytic and heterolytic fission of a covalent bond: free radicals, carbocation's, carbanions, electrophiles and nucleophiles, types of organic reactions.	Videos to show types of fission, reaction intermediates.	Art Integration: Drawing flowcharts on organic compounds and types of isomerism.	Practical: Revision of practical	1. Assignment on Organic Chemistry - Some Basic Principles and Techniques 2. Discussion of Scoring Points/ Marking Scheme/ Sample Questions
	PERIODIC TEST - 2				3.

Month Topic	Sub Topic	Audio Visual Inputs	Concept Maps / Diagrams/ Interdisciplinary Linkages/ Art Integration	Practical/ Investigatory Project	Assignment / Discussion
December Topic: Hydrocarbons No. of Periods: 12	Classification of Hydrocarbons Aliphatic Hydrocarbons: Alkanes - Nomenclature, isomerism, conformation (ethane only), physical properties, chemical reactions including free radical mechanism of halogenation, combustion and pyrolysis. Alkenes - Nomenclature, structure of double bond (ethene), geometrical isomerism, physical properties, methods of preparation, chemical reactions: addition of hydrogen, halogen, water, hydrogen halides (Markownikov's addition and peroxide effect), ozonolysis, oxidation, mechanism of electrophilic addition.	Video to show stereoisomerism in alkanes.	Art Integration: Drawing structures of stereoisomers of ethane.	Practical: Revision of practical	1. Assignment on Hydrocarbons 2. Discussion of Scoring Points/ Marking Scheme/ Sample Questions
January Topic: Hydrocarbons No. of Periods: 12	Alkynes - Nomenclature, structure of triple bond (ethyne), physical properties, methods of preparation, chemical reactions: acidic character of alkynes, addition reaction of - hydrogen, halogens, hydrogen halides and water. Aromatic Hydrocarbons: Introduction, IUPAC nomenclature, benzene: resonance, aromaticity, chemical properties: mechanism of electrophilic substitution. Nitration, sulphonation, halogenation, Friedel Craft's alkylation and acylation, directive influence of functional group in monosubstituted benzene. Carcinogenicity and toxicity.	Video to show structure of benzene.	Art Integration: Drawing different resonating structures of benzene.	Practical: Revision of practical	1. Assignment on Hydrocarbons. 2. Discussion of Scoring Points/ Marking Scheme/ Sample Questions
Topic: Environmental Chemistry	Environmental pollution - air, water and soil pollution, chemical reactions in atmosphere, smog, major atmospheric pollutants, acid rain, ozone and its reactions,	PPT on environmental Chemistry.	Art Integration: Making PPT on the different topics of	Practical: Revision of practical	1. Assignment on Environmental Chemistry

Month Topic	Sub Topic	Audio Visual Inputs	Concept Maps / Diagrams/ Interdisciplinary Linkages/ Art Integration	Practical/ Investigatory Project	Assignment / Discussion
No. of Periods: 06	effects of depletion of ozone layer, greenhouse effect and global warming- pollution due to industrial wastes, green chemistry as an alternative tool for reducing pollution, strategies for control of environmental pollution.		Environmental Chemistry.	Project: Final submission	2. Discussion of Scoring Points/ Marking Scheme/ Sample Questions
February	REVISION				
March	TERM- II EXAMINATION				

Curriculum Plan of Mathematics
(Session: 2020-2021)

Month Topic	Sub Topic	Concept/ Mathematics Activities	Assignment / Discussion
June Topic: Sets No. of Periods: 10	Sets and their representations. Empty set. Finite and Infinite sets. Equal sets. Subsets. Subsets of a set of real numbers especially intervals (with notations). Power set. Universal set. Venn diagrams. Union and Intersection of sets. Difference of sets. Complement of a set. Properties of Complement.	<ul style="list-style-type: none"> • To find the number of subsets of a given set and verify that if a set has n number of elements, then the total no. of subsets is 2^n. • To verify that for two sets A and B, $n(A \times B) = pq$ and the total no. of relations from A to B is 2^{pq}, where $n(A) = p$ and $n(B) = q$. 	<ul style="list-style-type: none"> • Assignment <ul style="list-style-type: none"> ○ Set-builder form, roster form, Venn diagrams, applications on union & intersection of sets
July Topic: Relations & Functions No. of Periods: 10 Topic: Trigonometric Functions No. of Periods: 15	<p>Ordered pairs. Cartesian product of sets. Number of elements in the Cartesian product of two finite sets. Cartesian product of the set of reals with itself (upto $R \times R \times R$). Definition of relation, pictorial diagrams, domain, co-domain and range of a relation. Function as a special type of relation. Pictorial representation of a function, domain, co-domain and range of a function. Real valued functions, domain and range of these functions, constant, identity, polynomial, rational, modulus, signum, exponential, logarithmic and greatest integer functions, with their graphs. Sum, difference, product and quotients of functions.</p> <p>Positive and negative angles. Measuring angles in radians and in degrees and conversion from one measure to another. Definition of trigonometric functions with the help of unit circle. Truth of the identity $\sin^2 x + \cos^2 x = 1$, for all x. Signs of trigonometric functions. Deducing identities like the following:</p> $\tan(x \pm y) = \frac{\tan x \pm \tan y}{1 \mp \tan x \tan y}, \cot(x \pm y) = \frac{\cot x \cot y \mp 1}{\cot y \pm \cot x}$ $\sin \alpha \pm \sin \beta = 2 \sin \frac{1}{2}(\alpha \pm \beta) \cos \frac{1}{2}(\alpha \mp \beta)$ $\cos \alpha + \cos \beta = 2 \cos \frac{1}{2}(\alpha + \beta) \cos \frac{1}{2}(\alpha - \beta)$ $\cos \alpha - \cos \beta = -2 \sin \frac{1}{2}(\alpha + \beta) \sin \frac{1}{2}(\alpha - \beta)$	<ul style="list-style-type: none"> • To distinguish between a Relation & Function. 	<ul style="list-style-type: none"> ○ Domain, range and co-domain ○ all trigonometric transformations, general solutions, domain-range, identities and various functions • Discussion of Scoring Points/ Marking Scheme/ Sample Questions

Month Topic	Sub Topic	Concept/ Mathematics Activities	Assignment
July Topic: Trigonometric Functions No. of Periods: 05	Identities related to $\sin 2x$, $\cos 2x$, $\tan 2x$, $\sin 3x$, $\cos 3x$ and $\tan 3x$. General solution of trigonometric equations of the type $\sin y = \sin a$, $\cos y = \cos a$ and $\tan y = \tan a$. Signs of trigonometric functions. Domain and range of trigonometric functions and their graphs. Expressing $\sin(x \pm y)$ and $\cos(x \pm y)$ in terms of $\sin x$, $\sin y$, $\cos x$ & $\cos y$ and their simple applications.		<ul style="list-style-type: none"> • Assignment <ul style="list-style-type: none"> ○ Principle of Mathematical Induction ○ Argument, modulus and polar form of complex numbers, & quadratic equations of imaginary nos. ○ graphical representation of linear inequalities ○ Permutations and Combinations ○ Binomial Theorem, its expansion and rth term • Discussion of Scoring Points/ Marking Scheme/ Sample Questions
Topic: Principle of Mathematical Induction No. of Periods: 05	Process of the proof by induction, motivating the application of the method by looking at natural numbers as the least inductive subset of real numbers. The principle of mathematical induction and simple applications.		
Topic: Complex Numbers and Quadratic Equations No. of Periods: 15	Need for complex numbers, especially $\sqrt{-1}$, to be motivated by inability to solve some of the quadratic equations. Algebraic properties of complex numbers. Argand plane and polar representation of complex numbers. Statement of Fundamental Theorem of Algebra, solution of quadratic equations (with real coefficients) in the complex number system. Square root of a complex number.	<ul style="list-style-type: none"> • To interpret geometrically the meaning of $i = \sqrt{-1}$ and its integral power. 	
August Topic: Linear Inequalities No. of Periods: 10	Linear inequalities. Algebraic solutions of linear inequalities in one variable and their representation on the number line. Graphical solution of linear inequalities in two variables. Graphical method of finding a solution of system of linear inequalities in two variables.	<ul style="list-style-type: none"> • To verify that the graph of a given inequality, say $5x + 4y - 40 < 0$, of the form $ax + by + c < 0$, $a, b > 0$, $c < 0$ represents only one of the two half planes. 	
Topic: Permutations and Combinations No. of Periods: 10	Fundamental principle of counting. Factorial n . $(n!)$ Permutations and combinations, derivation of Formulae for n_{pr} and n_{cr} and their connections, simple applications.	<ul style="list-style-type: none"> • To find the number of ways in which three cards can be selected from given five cards. 	
Topic: Binomial Theorem No. of Periods: 10	History, statement and proof of the binomial theorem for positive integral indices. Pascal's triangle, General and middle term in binomial expansion, simple applications.	<ul style="list-style-type: none"> • To construct a Pascal's triangle and to write binomial expansion for a given positive integral exponent. 	

Month Topic	Sub Topic	Concept/ Mathematics Activities	Assignment
Topic: Sequence and Series No. of Periods: 20	Sequence and Series. Arithmetic Progression (A. P.). Arithmetic Mean (A.M.) Geometric Progression (G.P.), general term of a G.P., sum of n terms of a G.P., infinite G.P. and its sum, geometric mean (G.M.), relation between A.M. and G.M. Formulae for the following special sums. $\sum_{k=1}^n k, \sum_{k=1}^n k^2 \text{ and } \sum_{k=1}^n k^3$	<ul style="list-style-type: none"> To demonstrate that the Arithmetic mean of two different positive numbers is always greater than the Geometric mean. 	<ul style="list-style-type: none"> Assignment <ul style="list-style-type: none"> Straight Lines Conic Sections A.P., A.M., G.P., G.M., relation between A.M. & G.M. and applications of sequences Slope, tangent, normal, various forms of slope of a line Parabola, Circle, Ellipse, Hyperbola and their applications Discussion of Scoring Points/ Marking Scheme/ Sample Questions
Topic: Straight Lines No. of Periods: 20	Brief recall of two dimensional geometry from earlier classes. Shifting of origin. Slope of a line and angle between two lines. Various forms of equations of a line: parallel to axis, point -slope form, slope-intercept form, two-point form, intercept form and normal form. General equation of a line. Equation of family of lines passing through the point of intersection of two lines. Distance of a point from a line.		
Topic: Conic Sections No. of Periods: 15	Sections of a cone: circles, ellipse, parabola, hyperbola, a point, a straight line and a pair of intersecting lines as a degenerated case of a conic section. Standard equations and simple properties of parabola, ellipse and hyperbola. Standard equation of a circle.	<ul style="list-style-type: none"> An alternating method to construct a parabola. To construct an ellipse using a rectangle. 	
	PERIODIC TEST : 1	□	
September Topic: Introduction to Three-dimensional Geometry No. of Periods: 10	Coordinate axes and coordinate planes in three dimensions. Coordinates of a point. Distance between two points and section formula.	<ul style="list-style-type: none"> To explain the concept of octants by three mutually perpendicular planes in space 	<ul style="list-style-type: none"> Assignment <ul style="list-style-type: none"> octants, distance formula and section formula in 3-D Discussion of Scoring Points/ Marking Scheme/ Sample Questions
	TERM- I EXAMINATION		

Month Topic	Sub Topic	Concept/ Mathematics Activities	Assignment / Discussion
October Topic: Limits and Derivatives No. of Periods: 15	Derivative introduced as rate of change both as that of distance function and geometrically. Intuitive idea of limit. Limits of polynomials and rational functions trigonometric, exponential and logarithmic functions. Definition of derivative relate it to slope of tangent of the curve, derivative of sum, difference, product and quotient of functions. Derivatives of polynomial and trigonometric functions.	<ul style="list-style-type: none">• To find analytically $\lim_{x \rightarrow c} \frac{x^2 - c^2}{x - c}$• Verification of the geometrical significance of derivative	<ul style="list-style-type: none">• Assignment<ul style="list-style-type: none">○ Limits, indeterminate form, derivatives of trigonometric functions, first principle, properties of derivatives○ basic Mathematical Reasoning○ Mean Deviation, median deviation, mode and frequency distribution○ Probability• Discussion of Scoring Points/ Marking Scheme/ Sample Questions
Topic: Mathematical Reasoning No. of Periods: 10	Mathematically acceptable statements. Connecting words/ phrases - consolidating the understanding of "if and only if (necessary and sufficient) condition", "implies", "and/or", "implied by", "and", "or", "there exists" and their use through variety of examples related to real life and Mathematics. Validating the statements involving the connecting words, difference among contradiction, converse and contrapositive.	<ul style="list-style-type: none">• To obtain truth values of compound statements of the type $p \vee q$ by using switch connections in parallel	
November Topic: Statistics No. of Periods: 20	Measures of Dispersion: Range, Mean deviation, variance and standard deviation of ungrouped/grouped data. Analysis of frequency distributions with equal means but different variances.		
Topic: Probability No. of Periods: 15	Random experiments; outcomes, sample spaces (set representation). Events; occurrence of events, ‘not’, ‘and’ and ‘or’ events, exhaustive events, mutually exclusive events, Axiomatic (set theoretic) probability, connections with other theories of earlier classes. Probability of an event, probability of ‘not’, ‘and’ and ‘or’ events.	<ul style="list-style-type: none">• To write the sample space, when a coin is tossed once, twice, three times, four times.	
PERIODIC TEST - 2			
December	REVISION		
January	REVISION		
February	REVISION		
March	TERM-II 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: The Living World No. of Periods: 05 Topic: Biological Classification No. of Periods: 06 Topic: Plant Kingdom Number of periods: 06	<p>What is living? Biodiversity; Need for classification; three domains of life; taxonomy and systematics; concept of species and taxonomical hierarchy; binomial nomenclature; tools for study of taxonomy- museums, zoological parks, herbaria, botanical gardens. Five kingdom classification; Salient features and classification of Monera, Protista and Fungi into major groups: Lichens, Viruses and Viroids.</p> <p>Salient features and classification of plants into major groups - Algae, Bryophyta, Pteridophyta, Gymnospermae and Angiospermae (three to five salient and distinguishing features and at least two examples of each category); Angiosperms - classification upto class, characteristic features and examples</p> <p>Salient features and classification of plants into major groups - Algae, Bryophyta, Pteridophyta, Gymnospermae and Angiospermae (three to five salient and distinguishing features and at least two examples of each category); Angiosperms - classification upto class, characteristic features and examples</p>	<p>Binomial nomenclature; tools for study of taxonomy</p> <p>Monera, Protista and Fungi into major groups: Lichens, Viruses and Viroids.</p> <p>Classification of plants into major groups - Algae, Bryophyta, Pteridophyta, Gymnospermae and Angiospermae</p>	<ul style="list-style-type: none"> • Concept Map <ul style="list-style-type: none"> ○ Figure 1.1 - Figure 1.3 ○ Figure 2.1 - Figure 2.6 ○ Figure 3.1 - Figure 3.7 	<ul style="list-style-type: none"> • Practical <ul style="list-style-type: none"> ○ Study of the parts of a compound microscope ○ Study of the specimens/slides/ models and identification with reasons - Bacteria, Oscillatoria, Spirogyra, Rhizopus, mushroom, yeast, liverwort, moss, fern, pine, one monocotyledonous plant, one dicotyledonous plant and one lichen. • 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"> ○ The Living World ○ Biological Classification ○ Plant Kingdom • 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
June Topic: Animal Kingdom No. of Periods: 06	Salient features and classification of animals, non-chordates up to phyla level and chordates up to class level (three to five salient features and at least two examples of each category).	Salient features animals, non-chordates up to phyla level and chordates up to class level	<ul style="list-style-type: none"> • Concept Map <ul style="list-style-type: none"> ◦ Figure 4.1- Figure 4.24 	<ul style="list-style-type: none"> • Practical <ul style="list-style-type: none"> ◦ Study of virtual specimens /slides/ models and identification with reasons - Amoeba, Hydra, liverfluke, Ascaris, leech, earthworm, prawn, silkworm, honeybee, snail, starfish, shark, rohu, frog, lizard, pigeon and rabbit ◦ Study of different modifications in roots, stems and leaves. ◦ Study and identification of different types of inflorescence (cymose and racemose) ◦ Study and description of three locally available common flowering plants, one from each of the families Solanaceae, Fabaceae and Liliaceae (Poaceae, Asteraceae or Brassicaceae can be substituted in case of particular geographical location) ◦ Study of tissues and diversity in shapes and sizes of plant and animal cells (palisade cells, guard cells, parenchyma, collenchyma, sclerenchyma, xylem, phloem, squamous epithelium, muscle fibers and mammalian blood smear) through temporary/permanent slides. ◦ Preparation and study of T.S. of dicot and monocot roots and stems (primary). ◦ Study of external morphology of cockroach through virtual images/models. 	<ul style="list-style-type: none"> • Assignment <ul style="list-style-type: none"> ◦ Animal Kingdom ◦ Morphology of Flowering Plants ◦ Anatomy of Flowering Plants ◦ Structural Organisation in Animals • Discussion of Scoring Points/ Marking Scheme/ Sample Questions
Topic: Morphology of Flowering Plants No. of Periods: 09	Morphology and modifications: Morphology of different parts of flowering plants: root, stem, leaf, inflorescence, flower, fruit and seed	Morphology of different parts of flowering plants: root, stem, leaf, inflorescence, flower, fruit and seed	<ul style="list-style-type: none"> • Concept Map <ul style="list-style-type: none"> ◦ Figure 5.1- Figure 5.23 		
Topic: Anatomy of Flowering Plants No. of Periods: 07	Anatomy and functions of different tissues and tissue systems	Anatomy and functions of different tissues	<ul style="list-style-type: none"> • Concept Map <ul style="list-style-type: none"> ◦ Figure 6.1- Figure 6.11 		

Month Topic	Sub Topic	Audio Visual Inputs	Concept Maps / Diagrams/ Interdisciplinary Linkages/ Art Integration	Practical/ Investigatory Project	Assignment / Discussion
July Topic: Cell-The Unit of Life No. of Periods: 12	Cell theory and cell as the basic unit of life: Structure of prokaryotic and eukaryotic cells; Plant cell and animal cell; cell envelope; cell membrane, cell wall; cell organelles - structure and function; endomembrane system, endoplasmic reticulum, golgi bodies, lysosomes, vacuoles; mitochondria, ribosomes, plastids, microbodies; cytoskeleton, cilia, flagella, centrioles (ultrastructure and function); nucleus.	Structure of prokaryotic and eukaryotic cells; Plant cell and animal cell	<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"> ○ Study of osmosis by potato osmometer. ○ Study of mitosis in onion root tip cells and animals cells (grasshopper) from permanent slides ○ Study of plasmolysis in epidermal peels (e.g. Rhoeo leaves). ○ Study of distribution of stomata in the upper and lower surface of leaves. ○ Comparative study of the rates of transpiration in the upper and lower surface of leaves. ○ Study of imbibition in seeds/raisins. ○ Separation of plant pigments through paper chromatography 	<ul style="list-style-type: none"> • Assignment <ul style="list-style-type: none"> ○ Cell-The Unit of Life ○ Biomolecules ○ Cell Cycle and Cell Division ○ Transport in Plants ○ Mineral Nutrition • Discussion of Scoring Points/ Marking Scheme/ Sample Questions
Topic: Bio- molecules No. of Periods: 12	Chemical constituents of living cells: biomolecules, structure and function of proteins, carbohydrates, lipids, nucleic acids; Enzymes- types, properties, enzyme action	Structure and function of proteins, carbohydrates, lipids, nucleic acids	<ul style="list-style-type: none"> • Concept Map <ul style="list-style-type: none"> ○ Figure 9.1- Figure 9.7 		
Topic: Cell Cycle and Cell Division No. of Periods: 10	Cell cycle, mitosis, meiosis and their significance	Cell cycle, mitosis, meiosis	<ul style="list-style-type: none"> • Concept Map <ul style="list-style-type: none"> ○ Figure 10.1- Figure 10.4 		
	PERIODIC TEST – 1		•		
August Topic: Transport in Plants No. of Periods: 08	Movement of water, gases and nutrients; cell to cell transport, diffusion, facilitated diffusion, active transport; plant-water relations, imbibition, water potential, osmosis, plasmolysis; long distance transport of water - Absorption, apoplast, symplast, transpiration pull, root pressure and guttation; transpiration, opening and closing of stomata; Uptake and translocation of mineral nutrients - Transport of food, phloem transport, mass flow hypothesis.	Diffusion, facilitated diffusion, active transport; plant-water relations, imbibition, water potential, osmosis, plasmolysis;	<ul style="list-style-type: none"> • Concept Map <ul style="list-style-type: none"> ○ Figure 11.1- Figure 11.10 		

Month Topic	Sub Topic	Audio Visual Inputs	Concept Maps / Diagrams/ Interdisciplinary Linkages/ Art Integration	Practical/ Investigatory Project	Assignment / Discussion
Topic: Mineral Nutrition No. of Periods: 08	Essential minerals, macro- and micronutrients and their role; deficiency symptoms; mineral toxicity; elementary idea of hydroponics as a method to study mineral nutrition; nitrogen	Biological nitrogen fixation. Essential minerals, macro- and micronutrients and their role; deficiency	<ul style="list-style-type: none"> • Concept Map <ul style="list-style-type: none"> ○ Figure 12.1- Figure 12.6 		
August Topic: Photo- synthesis in Higher Plants No. of Periods: 08	Photosynthesis as a means of autotrophic nutrition; site of photosynthesis, pigments involved in photosynthesis (elementary idea); photochemical and biosynthetic phases of photosynthesis; cyclic and non-cyclic photophosphorylation; chemiosmotic hypothesis; photorespiration; C3 and C4 pathways; factors affecting photosynthesis.	Photosynthesis	<ul style="list-style-type: none"> • Concept Map <ul style="list-style-type: none"> ○ Figure 13.1- Figure 13.10 	<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"> ○ Photosynthesis in Higher Plants • Discussion of Scoring Points/ Marking Scheme/ Sample Questions
September Topic: Structural Organisation in Animals No. of Periods: 07					
	Animal tissues; Morphology, anatomy and functions of different systems (digestive, circulatory, respiratory, nervous and reproductive) of an insect (cockroach). (a brief account only)	Morphology and anatomy of Cockroach	<ul style="list-style-type: none"> • Concept Map • <ul style="list-style-type: none"> ○ Figure 7.1- Figure 7.21 		<ul style="list-style-type: none"> • Assignment <ul style="list-style-type: none"> • Structural Organisation in Animals • 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: Respiration in Plants No. of Periods: 08 Topic: Plant - Growth and Development No. of Periods: 08	<p>Exchange of gases; cellular respiration - glycolysis, fermentation (anaerobic), TCA cycle and electron transport system (aerobic), energy relations - number of ATP molecules generated; amphibolic pathways, respiratory quotient.</p> <p>Seed germination; phases of plant growth and plant growth rate; conditions of growth; differentiation, dedifferentiation and redifferentiation; sequence of developmental processes in a plant cell; growth regulators - auxin, gibberellin, cytokinin, ethylene, ABA; seed dormancy; vernalisation; photoperiodism.</p>	<p>Glycolysis, fermentation (anaerobic), TCA cycle and electron transport system</p> <p>Phases of plant growth and plant growth rate; conditions of growth; dedifferentiation and redifferentiation</p>	<ul style="list-style-type: none"> • Concept Map <ul style="list-style-type: none"> ○ Figure 14.1- Figure 14.3 • Concept Map <ul style="list-style-type: none"> ○ Figure 15.1- Figure 15.6 	<ul style="list-style-type: none"> • Practical <ul style="list-style-type: none"> ○ Study of the rate of respiration in flower buds/ leaf tissue and germinating seeds. ○ Observation and comments on the experimental set up for showing: <ul style="list-style-type: none"> a) Anaerobic respiration b) Phototropism c) Effect of apical bud removal • Investigatory Project Final Submission 	<ul style="list-style-type: none"> • Assignment <ul style="list-style-type: none"> ○ Respiration in Plants • Discussion of Scoring Points/ Marking Scheme/ Sample Questions • Assignment <ul style="list-style-type: none"> ○ Plant - Growth and Development • Discussion of Scoring Points/ Marking Scheme/ Sample Questions
November Topic: Body Fluids and Circulation No. of Periods: 05	<p>Composition of blood, blood groups, coagulation of blood; composition of lymph and its function; human circulatory system - Structure of human heart and blood vessels; cardiac cycle, cardiac output, ECG; double circulation; regulation of cardiac activity; disorders of circulatory system - hypertension, coronary artery disease, angina pectoris, heart failure.</p>	<p>Composition of blood, blood groups, coagulation of blood;</p>	<ul style="list-style-type: none"> • Concept Map <ul style="list-style-type: none"> ○ Figure 18.1- Figure 18.4 	<ul style="list-style-type: none"> • Practical <ul style="list-style-type: none"> ○ To show electrocardiogram 	<ul style="list-style-type: none"> • Assignment <ul style="list-style-type: none"> ○ Body Fluids and Circulation • Discussion of Scoring Points/ Marking Scheme/ Sample Questions
Topic: Excretory Products and Their Elimination	<p>Modes of excretion - ammonotelism, ureotelism, uricotelism; human excretory system – structure and function; urine formation, osmoregulation; regulation of kidney function - renin - angiotensin, atrial</p>	<p>Modes of excretion - ammonotelism, ureotelism,</p>	<ul style="list-style-type: none"> • Concept Map <ul style="list-style-type: none"> ○ Figure 19.1- Figure 19.6 	<ul style="list-style-type: none"> • Practical <ul style="list-style-type: none"> • Test for presence of urea in urine. • Test for presence of sugar in urine. 	<ul style="list-style-type: none"> • Assignment <ul style="list-style-type: none"> ○ Excretory Products and Their Elimination

Month Topic	Sub Topic	Audio Visual Inputs	Concept Maps / Diagrams/ Interdisciplinary Linkages/ Art Integration	Practical/ Investigatory Project	Assignment / Discussion
No. of Periods: 05	natriuretic factor, ADH and diabetes insipidus; role of other organs in excretion; disorders - uraemia, renal failure, renal calculi, nephritis; dialysis and artificial kidney, kidney transplant.	uricotelism, human excretory system		<ul style="list-style-type: none"> ○ Test for presence of albumin in urine. ○ Test for presence of bile salts in urine. 	<ul style="list-style-type: none"> • Discussion of Scoring Points/ Marking Scheme/ Sample Questions
Topic: Locomotion and Movement No. of Periods: 05	Types of movement - ciliary, flagellar, muscular; skeletal muscle- contractile proteins and muscle contraction; skeletal system and its functions; joints; disorders of muscular and skeletal system - myasthenia gravis, tetany, muscular dystrophy, arthritis, osteoporosis, gout.	Types of movement skeletal system and its functions, joints	<ul style="list-style-type: none"> • Concept Map <ul style="list-style-type: none"> ○ Figure 20.1- Figure 20.10 	<ul style="list-style-type: none"> • Practical <ul style="list-style-type: none"> ○ Study of human skeleton and different types of joints with the help of virtual images/models only 	<ul style="list-style-type: none"> • Assignment <ul style="list-style-type: none"> ○ Locomotion and Movement • Discussion of Scoring Points/ Marking Scheme/ Sample Questions
PERIODIC TEST – 2					
December Topic: Breathing and Exchange of Gases No. of Periods: 05	Respiratory organs in animals (recall only); Respiratory system in humans; mechanism of breathing and its regulation in humans - exchange of gases, transport of gases and regulation of respiration, respiratory volume; disorders related to respiration - asthma, emphysema, occupational respiratory disorders.	Respiratory system in humans; mechanism of breathing and its regulation in humans - exchange of gases	<ul style="list-style-type: none"> • Concept Map <ul style="list-style-type: none"> ○ Figure 17.1- Figure 17.5 		<ul style="list-style-type: none"> • Assignment <ul style="list-style-type: none"> ○ Breathing and Exchange of Gases Discussion of Scoring Points/ Marking Scheme/ Sample Questions
Topic: Digestion and Absorption No. of Periods: 05	Alimentary canal and digestive glands, role of digestive enzymes and gastrointestinal hormones; Peristalsis, digestion, absorption and assimilation of proteins, carbohydrates and fats; calorific values of proteins, carbohydrates and fats; egestion; nutritional and digestive disorders - PEM, indigestion, constipation, vomiting, jaundice, diarrhoea.	Digestive system Mechanism of digestion	<ul style="list-style-type: none"> • Concept Map <ul style="list-style-type: none"> ○ Figure 16.1- Figure 16.7 	<ul style="list-style-type: none"> • Practical <ul style="list-style-type: none"> ○ Test for the presence of sugar, starch, proteins and fats. Detection in suitable plant and animal materials 	<ul style="list-style-type: none"> • Assignment <ul style="list-style-type: none"> ○ Digestion and Absorption 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
January Topic: Neural Control and Coordination No. of Periods: 05 Topic: Chemical Coordination and Integration No. of Periods: 05	<p>Neuron and nerves; Nervous system in humans - central nervous system; peripheral nervous system and visceral nervous system; generation and conduction of nerve impulse; reflex action; sensory perception; sense organs; elementary structure and functions of eye and ear</p> <p>Endocrine glands and hormones; human endocrine system - hypothalamus, pituitary, pineal, thyroid, parathyroid, adrenal, pancreas, gonads; mechanism of hormone action (elementary idea); role of hormones as messengers and regulators, hypo - and hyperactivity and related disorders; dwarfism, acromegaly, cretinism, goiter, exophthalmic goiter, diabetes, Addison's disease. Note: Diseases related to all the human physiological systems to be taught in brief.</p>	<p>Neuron and nerves, Nervous system in humans - central nervous system, peripheral nervous system and visceral nervous system</p> <p>Endocrine glands and hormones, human endocrine system</p>	<ul style="list-style-type: none"> • Concept Map <ul style="list-style-type: none"> ○ Figure 21.1- Figure 21.8 • Concept Map <ul style="list-style-type: none"> ○ Figure 22.1- Figure 22.4 	-	<ul style="list-style-type: none"> • Assignment <ul style="list-style-type: none"> ○ Neural Control and Coordination • Discussion of Scoring Points/ Marking Scheme/ Sample Questions • Assignment <ul style="list-style-type: none"> ○ Chemical Coordination and Integration Discussion of Scoring Points/ Marking Scheme/ Sample Questions
February	REVISION				
March	TERM-II EXAMINATION				

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

Month/Topic	Theory	Practical/Project	Miscellaneous
July Topic: Computer Systems and Organisation No. of periods: 26	<ul style="list-style-type: none"> ➤ Basic computer organisation: description of a computer system and mobile system, CPU, memory, hard disk, I/O, battery. ➤ Types of software: application, System, utility. ➤ Memory Units: bit, byte, MB, GB, TB, and PB ➤ Boolean logic: OR, AND, NAND, NOR, XOR, NOT, truth tables, De Morgan's laws ➤ Information representation: numbers in base 2, 8, 16, binary addition ➤ Strings: ASCII, UTF8, UTF32, ISCII (Indian script code), Unicode ➤ Basic Concepts of Flowchart ➤ Concept of Compiler & Interpreter ➤ Running a program: Notion of an operating system, how an operating system runs a program, idea of loading, operating system as a resource manager. ➤ Concept of cloud computing, cloud (public/private), introduction to parallel computing. 	<ul style="list-style-type: none"> • Demonstration of computer showing different parts of CPU. • Drawing Flowcharts <ul style="list-style-type: none"> ○ to find successor and predecessor of a given number ○ to find sum of two numbers ○ to find average of three numbers ○ to check positive/negative no. ○ to find whether a given number is even or odd ○ to print first 10 natural/whole numbers ○ to develop infinite loop 	<ul style="list-style-type: none"> • Assignment <ul style="list-style-type: none"> ○ Computer fundamentals ○ Boolean Logic ○ Information Representation • Discussion of Scoring Points/ Marking Scheme/ Sample Questions • Art Integration <ul style="list-style-type: none"> ○ Draw the block diagram of computer • Video <ul style="list-style-type: none"> ○ Software ○ Cloud computing • Core Skills <ul style="list-style-type: none"> ○ Problem solving ○ Critical thinking ○ Decision making ○ Empathy
July Topic: Computational Thinking and Programming No. of periods: 14	<ul style="list-style-type: none"> ➤ Basics of Computational Thinking: Decomposition, Pattern Recognition/ Data representation, Generalization/ Data Abstraction and algorithm. ➤ Familiarization with the basics of Python programming: a simple "hello world" program, process of writing a program (Interactive & Script mode), running it, and print statements; simple data-types: integer, float, string 	Write a program to <ul style="list-style-type: none"> • display "hello world" on screen • print the successor, predecessor, half, double of a given number 	<ul style="list-style-type: none"> • Assignment <ul style="list-style-type: none"> ○ Computational Thinking ○ Python Programming • Discussion of Scoring Points/ Marking Scheme/ Sample Questions • Video <ul style="list-style-type: none"> ○ Computational Thinking
PERIODIC TEST-I			

Month/Topic	Theory	Practical/Project	Miscellaneous
August Topic: Computational Thinking and Programming No. of periods: 40	<ul style="list-style-type: none"> ➤ Features of Python, Python Character Set, Token & Identifiers, Keywords, Literals, Delimiters, operators. ➤ Comments: (Single line & Multiline/ Continuation statements), Clarity & Simplification of expression. ➤ Introduce the notion of a variable, and methods to manipulate it (concept of Lvalue and R-value even if not taught explicitly). ➤ Knowledge of data types and operators: accepting input from the console, assignment statement, expressions, operators and their precedence. ➤ Operators & types: Binary operators – Arithmetic, Relational operators, Logical Operators, Augmented Assignment operators. 	Write programs in Python to <ul style="list-style-type: none"> • Find the sum of two numbers • Find the average of three numbers • Accept values in four variables from use. Divide the sum of first two numbers by the difference of last two numbers and display the result • Find whether a given number is positive/ negative • Find whether a given number is even/odd • Find the bigger/smaller of two numbers • Find the biggest/smallest of three numbers 	<ul style="list-style-type: none"> • Assignment <ul style="list-style-type: none"> ○ Python Programming • Discussion of Scoring Points/ Marking Scheme/ Sample Questions • Core Skills <ul style="list-style-type: none"> ○ Problem solving ○ Critical thinking ○ Creative thinking ○ Decision making ○ Empathy ○ Interpersonal relationship ○ Self-awareness
September Topic: Computational Thinking and Programming No. of periods: 20	<ul style="list-style-type: none"> ➤ Conditional statements: if, if-else, if-elif-else; simple programs: e.g.: absolute value, sort 3 numbers, and divisibility. ➤ Notion of iterative computation and control flow: for(range(), len()), while, flowcharts, suggested programs: interest calculation and factorials, etc. ➤ Idea of debugging: errors and exceptions; debugging: pdb, break points. 	<ul style="list-style-type: none"> • Find the factorial of a given number. • Accept values for Principle, Rate of Interest and Time. Calculate Simple Interest. • Find x^n. • Print first N natural/whole numbers in forward/reverse order • Print even/odd numbers between 1 and N. • Find whether a given number is prime or not • Find if a number is equal to the sum of the cubes of its digits. • Find the reverse of a given number • Find the sum of digits of a given number • Find LCM and HCF of two given numbers 	

Month/Topic	Theory	Practical/Project	Miscellaneous
October Topic: Computational Thinking and Programming No. of periods: 20	➤ Lists, tuples and dictionary: finding the maximum, minimum, mean; linear search on list/tuple of numbers, and counting the frequency of elements in a list using a dictionary. Introduce the notion of accessing elements in a collection using numbers and names.	Write programs in Python to <ul style="list-style-type: none"> • Search for a number/name in the given list • Arrange the numbers in ascending/descending order 	<ul style="list-style-type: none"> • Assignment <ul style="list-style-type: none"> ○ Python Programming • Discussion of Scoring Points
November Topic: Computational Thinking and Programming No. of periods: 56	➤ Sorting algorithm: bubble and insertion sort; count the number of operations while sorting. ➤ Strings: Traversing, compare, concat, substring. ➤ Introduction to Python modules: Importing math (sqrt, cell, floor, pow, fabs, sin, cos, tan, random (random, randint, randrange), statistics (mean, median, mode) modules.	<ul style="list-style-type: none"> • Find the largest/smallest number in a given list • Find the second largest/smallest number in a given list • Find the reverse of a given string • Find whether a given string is palindrome or not • Project Work 	<ul style="list-style-type: none"> • Marking Scheme/ Sample Questions • Core Skills <ul style="list-style-type: none"> ○ Problem solving ○ Critical thinking ○ Creative thinking ○ Decision making ○ Empathy
PERIODIC TEST-II			
December Topic: Data Management No. of periods: 20	➤ Relational databases: Concept of a database, relations, attributes and tuples, keys- candidate key, primary key, alternate key, foreign key, Degree and cardinality of a table. ➤ Use SQL – DDL/ DML commands to CREATE TABLE, INSERT INTO, UPDATE TABLE, DELETE FROM, ALTER TABLE, MODIFY TABLE, DROP TABLE, keys, and foreign keys; to view content of a table: SELECT-FROM WHERE-ORDER BY along with BETWEEN, IN, LIKE (Queries only on single table)	<ul style="list-style-type: none"> • Create a student table with the student id, name, and marks as attributes where the student id is the primary key. • Add a new column in the above table. • Modify the details of a particular column • Delete a particular column • Insert the details of a new student in the above table. • Delete & update the details of a particular student in the above table. 	<ul style="list-style-type: none"> • Discussion of Scoring Points/ Marking Scheme/ Sample Questions • Core Skills <ul style="list-style-type: none"> ○ Problem solving ○ Critical thinking ○ Creative thinking Decision making

Month/Topic	Theory	Practical/Project	Miscellaneous
		<ul style="list-style-type: none"> • Use the select command to manipulate data. • Create a new table (name, date of birth) by joining two tables (student id, name) and (studentid, date of birth). 	
January Topic: Data Management No. of Periods:- 34	<ul style="list-style-type: none"> ➤ Aggregate functions – MIN, MAX, AVG, COUNT, SUM ➤ Basics of NoSQL databases. 	<ul style="list-style-type: none"> • Create a new table (order ID, customer Name, and order Date) by joining two tables (order ID, customer ID, and order Date) and (customer ID, customer Name, contact Name, country). • Show details from two tables 	
January Topic: Cyber safety, Online Access and Computer Security No. of periods: 10	<ul style="list-style-type: none"> ➤ Cyber safety: safely browsing the web, identity protection, confidentiality, social networks, cyber trolls and bullying ➤ Appropriate usage of social networks: spread of rumours, and common social networking sites (Twitter, LinkedIn, and Facebook) and specific usage rules. ➤ Safely accessing web sites: adware, malware, viruses, Trojans ➤ Safely communicating data: secure connections, eavesdropping, phishing and identity verification. 		<ul style="list-style-type: none"> • Assignment <ul style="list-style-type: none"> ○ Cyber Safety • Discussion of Scoring Points/ Marking Scheme/ Sample Questions • Video <ul style="list-style-type: none"> ○ Cyber Safety ○ Usage of Social Networking ○ Malware, Virus, Trojans etc. ○ Phishing • Core Skills <ul style="list-style-type: none"> ○ Self-awareness <ul style="list-style-type: none"> ○ Interpersonal relationship ○ Empathy
February	REVISION		
March	TERM-II EXAMINATION		

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

Month Topic	Sub Topic	Audio Visual Inputs	Practical	Miscellaneous
April Topic: Changing Trends & Career in Physical Education No. of periods:	<ul style="list-style-type: none"> ➤ Meaning & Definition of Physical Education ➤ Aims & Objectives of Physical Education ➤ Career Options in Physical Education ➤ Competitions in various sports at national & international level ➤ Khelo- India Program 	Video on Khelo –India Program		1. Assignment 2. Discussion of Scoring Points/ Marking Scheme/ Sample Questions
May Topic: Olympic Value Education No. of periods:	<ul style="list-style-type: none"> ➤ Olympics, Paralympics & Special Olympics ➤ Olympics Symbols Ideas Objectives & Values of Olympics ➤ International Olympic Committee ➤ Indian Olympics Association 	Video on Olympics, Paralympics & Special Olympics	Labelled diagram of 400 M Track & Field with computations	
Topic: Physical Fitness, Wellness & Lifestyle No. of periods:	<ul style="list-style-type: none"> ➤ Meaning & Importance of Physical Fitness, Wellness & Lifestyle ➤ Components of physical fitness and Wellness ➤ Components of Health related fitness 		Computation of BMI from family or neighborhood & graphical representation of the data.	
July Topic: Physical Education & Sports for CWSN No. of periods:	<ul style="list-style-type: none"> ➤ Aims & objectives of Adaptive Physical Education ➤ Organization promoting Adaptive Sports (Special Olympics Bharat; Paralympics; Deaflympics) ➤ Concept of Inclusion, its need and Implementation ➤ Role of various professionals for children with special needs (Counsellor, Occupational Therapist, Physiotherapist, Physical Education Teacher, Speech Therapist & Special Educator) 	Video on Special Olympic Bharat, Deaflympics	Labelled diagram of field & equipment of any one game of your choice out of the above list.	

Month Topic	Sub Topic	Audio Visual Inputs	Practical	Miscellaneous
Topic: Yoga No. of periods:	<ul style="list-style-type: none"> ➤ Meaning & Importance of Yoga ➤ Elements of Yoga ➤ Introduction - Asanas, Pranayam, Meditation & Yogic Kriyas ➤ Yoga for concentration & related Asanas (Sukhasana; Tadasana; Padmasana & Shashankasana, Naukasana, Vrikshasana (Tree pose), Garudasana (Eagle pose) ➤ Relaxation Techniques for improving concentration – Yog-nidra 	Video on Procedure of yoga and yogic kriyas		1. Assignment 2. Discussion of Scoring Points/ Marking Scheme/ Sample Questions
	PERIODIC TEST – 1			
August Topic: Physical Activity & Leadership Training No. of periods:	<ul style="list-style-type: none"> ➤ Leadership Qualities & Role of a Leader ➤ Creating leaders through Physical Education ➤ Meaning, objectives & types of Adventure Sports (Rock Climbing, Tracking, River Rafting, Mountaineering, Surfing and Para Gliding) ➤ Safety measures to prevent sports injuries 	Video on Adventure sports	List of current National Awardees (Dronacharya Award, Arjuna Award & Rajiv Gandhi Khel Ratna Award)	
Topic: Test, Measurement & Evaluation No. of periods:	<ul style="list-style-type: none"> ➤ Define Test, Measurement & Evaluation ➤ Importance of Test, Measurement & Evaluation In Sports ➤ Calculation of BMI & Waist - Hip Ratio ➤ Somato Types (Endomorphy, Mesomorphy & Ectomorphy) ➤ Measurement of health related fitness 	Video on Test & Measurment		
September Topic: Fundamentals of Anatomy, Physiology & Kinesiology in Sports No. of periods:				
	<ul style="list-style-type: none"> ➤ Definition and Importance of Anatomy, Physiology & Kinesiology ➤ Function of Skeleton System, Classification of Bones & Types of Joints ➤ Properties and Functions of Muscles ➤ Function & Structure of Respiratory System and Circulatory System ➤ Equilibrium – Dynamic & Static And Centre of Gravity and its application in sports 	Video on Function of all System in our body		
	TERM-I EXAMINATION			

Month Topic	Sub Topic	Audio Visual Inputs	Practical	Miscellaneous
October Topic: Psychology & Sports No. of periods:	<ul style="list-style-type: none"> ➤ Definition & Importance of Psychology in Phy. Edu. & Sports ➤ Define & Differentiate Between Growth & Development ➤ Developmental Characteristics at Different Stages of Development ➤ Adolescent Problems & Their Management 	Video on Growth & Development of children	Pictorial presentation of any five Asanas for improving concentration.	
November Topic: Training and Doping in Sports No. of periods:	<ul style="list-style-type: none"> ➤ Meaning & Concept of Sports Training ➤ Principles of Sports Training ➤ Warming up & limbering down ➤ Skill, Technique & Style ➤ Concept & classification of doping ➤ Prohibited Substances & their side effects ➤ Dealing with alcohol and substance abuse 	Video on Sports training in sports		1. Assignment 2. Discussion of Scoring Points/ Marking Scheme/ Sample Questions
PERIODIC TEST – 2				
December	REVISION			
January	REVISION			
February	REVISION			
March	TERM- II EXAMINATION			

Curriculum Plan of Applied Mathematics

(Session: 2020-21)

Months Units	Sub- topic	Project works/Practical	Assignment/ Discussion
June Unit I Numbers, Quantification and Numerical Applications No. of periods:20	<ul style="list-style-type: none"> • Prime Numbers, Encryptions using Prime Numbers • Binary Numbers • Complex Numbers (Preliminary idea only) • Indices, Logarithm and Antilogarithm • Laws and properties of logarithms • Simple applications of logarithm and antilogarithm • Numerical problems on averages, calendar, clock, time, work and distance, • mensuration, seating arrangement 	Project: <ul style="list-style-type: none"> • Use of prime numbers in coding and decoding of messages; • Prime numbers and divisibility rules; • Logarithms for financial calculations such as interest, present value, future value, • profit/loss etc with large values); 	Assignment: <ul style="list-style-type: none"> • Binary Numbers Complex Numbers Simple applications of logarithm and antilogarithm Numerical problems on averages, calendar, clock, time, work and distance, Discussion of Scoring Points/ Marking Scheme/ Sample Questions
July Unit:II Algebra No. of periods:35	<ul style="list-style-type: none"> • Sets • Types of sets • Venn diagram • De Morgan's laws • Problem solving using Venn diagram • Relations and types of relations • Introduction of Sequences, Series • Arithmetic and Geometric 	Project: <ul style="list-style-type: none"> • Cardinality of a set and orders of infinity; • Comparing sets of Natural numbers, rational numbers, real numbers and others; • Use of Venn Diagram in solving practical problems; 	Assignment: <p>Problem solving using Venn diagram Problem based on permutation and combination</p> Discussion of Scoring Points/ Marking Scheme/ Sample Questions

	<ul style="list-style-type: none"> progression Relationship between AM and GM Basic concepts of Permutations and Combinations Permutations, Circular Permutations, Permutations with restrictions Combinations with standard results 		
August Unit III Mathematical and Logical Reasoning No. of periods: 15	<ul style="list-style-type: none"> Mathematically acceptable statements Connecting words/ phrases in Mathematical statement consolidating the understanding of “if and only if (necessary and sufficient) condition”, “implies”, “and/or”, “implied by”, “and”, “or”, “there exists” and their use through variety of examples related to real life and Mathematics Problems based on logical reasoning (coding-decoding, odd man out, blood relation, syllogism etc.) 	Project: Testing the validity of mathematical statements and framing truth tables;	Assignment: Problems based on logical reasoning Discussion of Scoring Points/ Marking Scheme/ Sample Questions
September Unit IV Calculus No. of periods: 30	<ul style="list-style-type: none"> Introducing functions Domain and Range of a function Types of functions (Polynomial function; Rational function; Composite function; Logarithm 	Project: <ul style="list-style-type: none"> Investigating graphs of functions for their properties; Practical: <ul style="list-style-type: none"> Plot the graph of functions on excel, study the nature of function 	Assignment: write the definitions of different types of function. Find Derivatives of algebraic functions using Chain rule

	<p>function; Exponential function; Modulus function; Greatest Integer function, Signum function.</p> <ul style="list-style-type: none"> Graphical representation of functions Concept of limits and continuity of a function Instantaneous rates of change Differentiation as a process of finding derivative Derivatives of algebraic functions using Chain rule Tangent line and equations of tangents 	at various points, drawing lines of tangents;	Discussion of Scoring Points/ Marking Scheme/ Sample Questions
		TERM –I EXAMINATION	
October Unit V Probability No. of periods: 30	<ul style="list-style-type: none"> Random experiment, sample space, events, mutually exclusive events Independent and Dependent Events Law of Total Probability Bayes' Theorem 	Practical: Create budget of income and spending.	Assignment: Problem based on Independent and Dependent Events Law of Total Probability Bayes' Theorem Discussion of Scoring Points/ Marking Scheme/ Sample Questions
November Unit VI Descriptive Statistics No. of periods: 35	<ul style="list-style-type: none"> Types of data (raw data, univariate data, bivariate and multi-variate data) Data on various scales (nominal, ordinal, interval and ratio scale) Data representation and visualization Data interpretation (central 	Practical: Collect the data on weather, price, inflation, and pollution. Sketch different	Assignment: Percentile rank and quartile rank Correlation (Pearson and Spearman method of correlation) Applications of descriptive statistics using real time data Discussion of Scoring Points/ Marking Scheme/ Sample Questions

	<p>tendency, dispersion, deviation, variance,</p> <ul style="list-style-type: none"> • skewness and kurtosis) • Percentile rank and quartile rank • Correlation (Pearson and Spearman method of correlation) • Applications of descriptive statistics using real time data 		
<p>December Unit VII Basics of Financial Mathematics No. of periods: 55</p>	<ul style="list-style-type: none"> • Interest and interest rate • Accumulation with simple and compound interest • Simple and compound interest rates with equivalency • Effective rate of interest • Present value, net present value and future value • Annuities, calculating value of regular annuity • Simple applications of regular annuities (up to 3 period) • Tax, calculation of tax and simple applications of tax calculation in Goods and service tax, Income Tax • Bills, tariff rates, fixed charge, surcharge, service charge • Calculation and interpretation of electricity bill, water supply bill and other supply bills <p>(Comparing interest rates on various types of savings; calculating income tax;</p>	<p>Practical:</p> <ul style="list-style-type: none"> • Create budget of income and spending . • Create compare sheet of price, features to buy a product; • Prepare best option plan to buy a product by comparing cost, shipping • charges, tax and other hidden cost; • Smart purchasing during sale season; 	<p>Assignment: Calculation of interest, tax, bill etc.</p> <p>Discussion of Scoring Points/ Marking Scheme/ Sample Questions</p>

	electricity bills, water bill; service surcharge using realistic data)		
January Unit VIII Coordinate Geometry No. of periods: 20	<ul style="list-style-type: none"> • Straight Line • Circles • Parabola (only standard forms and graphical representation on two-dimensional plane)		Assignment: Problem based on Straight Line, Circles, Parabola Discussion of Scoring Points/ Marking Scheme/ Sample Questions
February	REVISION		
March	TERM-II EXAMINATION		