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**Syllabus for Class XI**  
**Subject : English Core**  
**ENGLISH CORE (CODE NO. 301) CLASS – XI (2019-20)**  
**SECTION – A (20 Marks)**

**READING COMPREHENSION**

**45 Periods**

There shall be two unseen passages (including poems) with a variety of questions like Very Short Answer Questions, Short Answer Questions and Multiple Choice Questions, including 04 marks for vocabulary such as word formation and inferring meaning. Multiple Choice Questions(1x6 = 6marks), Very Short Answer Questions (1x6 = 6marks), 01 Short Answer Questions (1x3 = 3marks), 01 Long Answer Question ( 1x5 = 5 marks)

The total range of the 2 passages including a poem or a stanza, should be around 900-1000 words as per the following details:

1. The passage of 550-600 words in length will be used for note-making and summarising.
2. The passage of 350-400 words in length will be used to test comprehension, interpretation and inference.
3. An unseen poem of about 28-35 lines.

The passages as given above could be of any one of the following types: **Factual passages**, e.g., illustrations, description, reports/**Discursive passages** involving opinion, e.g., argumentative, persuasive/**Literary passages** e.g. extracts from fiction, biography, autobiography, travelogue, etc. In the case of a poem, the text may be shorter than the prescribed word limit.

## **SECTION B ( 30 Marks)**

### **WRITING SKILLS AND GRAMMAR**

#### **Writing**

**60 Periods**

**Short Answer Questions:** Based on notice/ poster/ advertisement- **4 Marks**

**Long Answer Questions:** Letters based on verbal/visual input. **6×2=12 Marks**

**It would cover all types of letters. Letter types may include:**

- (a) business or official letters (for making enquiries, registering complaints, asking for and giving information, placing orders and sending replies)
- (b) letters to the editor (giving suggestions/opinions on an issue)
- (c) application for a job with a bio-data or resumé
- (d) letter to the school or college authorities, regarding admissions, school issues, requirements / suitability of courses, etc.

**Very Long Answer Question:** Composition in the form of article/speech/ report writing or a narrative- **8 Marks**

#### **GRAMMAR (Six objective type questions)**

**6 Marks**

Different grammatical structures in meaningful contexts will be tested. Item types will include gap filling, sentence re-ordering, dialogue completion and sentence transformation. The grammar syllabus will include determiners, tenses, clauses, modals and Change of Voice. These grammar areas will be tested through **10 Very short answer type questions on the following:**

- A. Error Correction, editing tasks
- B. Re - ordering of sentences,
- C. Transformation of sentences

## **SECTION C ( 30 Marks)**

### **LITERATURE**

**70 Periods**

Questions from the following texts to test comprehension at different levels , like literal, inferential and evaluative:-

1. **Hornbill** : Textbook published by NCERT, New Delhi
2. **Snapshots** : Supplementary Reader published by NCERT, New Delhi.

### **SECTION C (30 Marks)**

#### **LITERATURE**

**70 Periods**

Questions from the prescribed texts to test comprehension at different levels, like literal, inferential and evaluative will be asked.

1. Two Objective Type Questions out of three-Based on an extract from poetry to test reference to context comprehension and appreciation.  
(1×2 = 2 Marks)
2. Five Short Answer Questions out of six (3 question should be from Hornbill) - Based on prose, poetry and plays from both the texts. (2×5=10 marks)

One Long Answer Question out of two from Hornbill (to be answered in 120-150 words)

Based on prescribed texts to test global comprehension and extrapolation-beyond the texts. 6 marks

#### **Unitwise Distribution of Syllabus**

3. One Long Answer Question out of two from Snapshots (to be answered in 120-150 words)

Based on prescribed texts to test global comprehension and extrapolation-beyond the texts. 6 Marks

4. One Long Answer Question out of two from Hornbill (to be answered in 120-150 words)

Based on understanding appreciation, analysis and interpretation of the characters/events/episodes/incidents. 6 Marks

## INTERNAL ASSESSMENT

### Assessment of Listening and Speaking Skills

45 Periods

Assessment of Listening and Speaking Skills will be for 20 marks. It is recommended that listening and speaking skills should be regularly practiced in the class.

#### QUESTION PAPER DESIGN 2019-20

English Core XI (Code No. 301)

Marks : 80 + 20 = 100

Typology	Testing Competencies	Objective Type Question including MCQS (1 Marks) each	Short Answer Question-2 Mark each	Short Answer Question-3 Mark each	Short Answer Question-4 Mark each	Long Answer Question-1 80-100 words (5 marks) each	Long Answer Question-2 120-150 words (6 marks) each	Long Answer Question 150-200 words (HOTS) (8 marks) each	Total Marks
Reading Comprehension	Conceptual understanding decoding, Analyzing, inferring, interpreting, appreciating, literary conventions and vocabulary, summarizing and using appropriate formats	Objective Type Questions 6 MCQs 6	—	1	—	1	—	—	20
Writing Skill and Grammar	Reasoning, appropriacy of style and tone, using and tone, using appropriate format and fluency, inference, analysis, evaluation and creativity	6	—	—	1	—	2	1	30
Literature Textbook and Supplementary Reading Text	Recalling, reasoning, appreciating literary convention, inference, analysis, creativity with fluency	2 From poetry extract	5	—	1	—	3	—	30
	<b>TOTAL</b>	<b>1×20=20</b>	<b>2×5=10</b>	<b>3×1=3</b>	<b>4×1=4</b>	<b>5×1=5</b>	<b>6×5=30</b>	<b>8×1=8</b>	<b>80</b>
Assessment of Listening and Speaking Skills	—	—	—	—	—	—	—	—	20
	<b>TOTAL</b>	—	—	—	—	—	—	—	100

**QUESTION PAPER DESIGN 2019-20**

Class : XI

English Core XI  
(Code No. 301)

Time - 3 Hours

Marks : 80 + 20 = 100

Typology	Typology of questions/ learning Outcomes	MCQ 1 Mark	Very Short Answer Question 1 marks	Short Answer Question-3 Mark each	Short Answer Question-4 Mark each	Long Answer Question-1 80-100 words (5 marks) each	Long Answer Question-2 120-150 words (6 marks) each	Very Long Answer Question 150-200 words (HOTS) (10 marks) each	Total 1 Marks	Over all %
Reading Comprehension	Conceptual understanding decoding, Analyzing, inferring, interpreting, appreciating, literary conventions and vocabulary, summarizing and using appropriate formats	6	6	1	—	1	—	—	20	20
Writing Skill and Grammar	Reasoning, appropriacy of style and tone, using and tone, using appropriate format and fluency, inference, analysis, evaluation and creativity, appreciation applying of languages conventions comprehension using structures integratively, accurancy and fluency.	—	10	—	1	—	1	1	30	30
Literary Text book and Supplementary Reader	Recalling, reasoning, appreciating a literary conventions, inference, analysis, evaluation, creativity with fluency	—	3	3	—	—	3	—	30	30
Assessment of Listening and Speaking Skills	Interaction, reasoning, diction, articulation, clarity, pronunciation and overall fluency.	—	—	—	—	4	—	—	20	20
	<b>TOTAL</b>	<b>6×1=6</b>	<b>19×1=19</b>	<b>4×3=12</b>	<b>1×4=4</b>	<b>5×5=25</b>	<b>4×6=24</b>	<b>1×10=10</b>	<b>100</b>	<b>100</b>

## **Unit – 1**

L. Reader : **Ch-1 The Portrait of a lady.**

(key words-revolting, serenity, seclusion, veritable, resignation, frivolous, rebukes, dilapidated, chirruping, monopoly)

S. Reader : **Ch-1- The Summer of the beautiful white horse.**

(Key words-magnificence, hallmarks, capricious, vagrant, surrey, suspicious)

Grammar : Determiners

Writing : Notice-writing, Factual Description of an event, person or incident.

Reading : Practice of unseen passage

## **Unit – 2**

L. Reader : **Poem- A Photograph**

(Key words - paddling, transient, wry, laboured, circumstance)

Ch-2-The Address

(Key words-poignant, fleetingly, lugging, reprovngly, threatened, oppressed)

L. Reader : **Ch-2 We're Not Afraid to Die.....if We Can All Be Together**

(Key words-honing, ominous, tousled, gigantic, scrambled, sloshed, deteriorate, respite, caricatures, optimistic, expeditions, hazardous)

Writing : Report writing

Reading : Note-making

Book Review: Reading project to be submitted.

Grammar: Re –ordering – sentences

### **Unit – 3**

L. Reader : **Ch-3 Discovering Tut..... the Saga Continues**

(Key words-forensic, scudded, resurrection, funerary, circumvented, tomography, consolidated, aftermath, demise, intriguing, speculations, eerie, constellation)

L. Reader : **Ch- Landscape of the Soul**

(Key words - Anecdote , astonished, Flanders ,mooted, conduit propounding)

Writing : Poster making, debate

Grammar : Editing and Omission

### **Unit – 4**

S. Reader : **Ch-3 Ranga's Marriage**

(Key words - Cartographer, disgraceful, pleasantries, savoring, negotiations, suspicion)

L. Reader : **Ch-4 The Laburnum Top (Poetry)**

(Key words - Laburnum, goldfinch, twitching, chirrup, chitterlings, tremor, barred, eerie )

Reading : Practice of Unseen Passage

Writing : Letter to editor

Grammar : Tenses

### **Unit-5**

S. Reader : **Ch-4 Albert Einstein at School**

(key words- expulsion, speechless, miserable, squalor, reluctantly, summoned, rebellion, accord, stalked)



L. Reader : **Ch-5 The Ailing Planet**

(Key words-holistic, ecological, sustainable, languish, ignominious, catastrophic, depletion, transcending, decimated, impoverished, precede, tenancy, voluntary)

Writing : Speech

Assessment of Speaking & Listening tests to be conducted.

**Unit – 6**

L. Reader : **Poem-The Voice of the Rain**

(key words - impalpable, vaguely, lave, droughts, atomies, racked)

S. Reader : **Ch-5 Mother's Day**

(Key words - dubiously, apologetically, lax, complacently, dominating, indignantly, barny, concussion, pompous)

Grammar : Modals

Writing : Article

Reading : Note - making

**Unit – 7**

L. Reader : **Ch-6 The Browning Version**

(Excerpt, Slackers, Evidently, Exaggerate, Shriveled up, Frantically, Throaty)

Ch-7 The Adventure

(Key words – astute, de-facto, relegated, acumen smugly, trajectory)

Grammar : Active Passive Voice

Writing : Official letters for making enquiry, Business letters for complaints, placing order and sending replies.

## **Unit – 8**

L. Reader : (Poem) Childhood

(key words- Ceased, Preached)

S. Reader : **L.7. Birth**

(Key words Abruptly, Contemplation, Premonition, fret, Sordidly, Flaccid Oblivious)

Grammar : Re – ordering – sentences, Editing and Omission

Writing : Classified Advertisements

## **Unit – 9**

L. Reader : **(Poem) Father to Son**

(Key words - Seed I spent, Prodigal, Built to my design)

S. Reader : **The Ghat of the only World**

( Key words - Malignant, imperative, poignancy, roster, conviviality )

Grammar : Clauses

Writing : Job Application, Letter to School or College Authorities.

## **Unit – 10**

S. Reader : **Ch-8 the Tale of the Melon City.**

(Key words - Placid, Edify, Frown, Quivering, Scaffold, Amendments, Gallows Heralds)

L. Reader : **Silk Road**

(Key words - Man oeuvres, billowed, swathe, gazelles, veering)

Revision of entire syllabus.

Assessment of Speaking and listening skills to be conducted.

## **PHYSICS**

### **Class XI (Code No. 042)**

Senior Secondary stage of school education is a stage of transition from general education to discipline-based focus on curriculum. The present updated syllabus keeps in view the rigour and depth of disciplinary approach as well as the comprehension level of learners. Due care has also been taken that the syllabus is comparable to the international standards. Salient features of the syllabus include:

- Emphasis on basic conceptual understanding of the content.
- Emphasis on use of SI units, symbols, nomenclature of physical quantities and formulations as per international standards.
- Providing logical sequencing of units of the subject matter and proper placement of concepts with their linkage for better learning.
- Reducing the curriculum load by eliminating overlapping of concepts/ content within the discipline and other disciplines.
- Promotion of process-skills, problem-solving abilities and applications of Physics concepts. Besides, the syllabus also attempts to
- Strengthen the concepts developed at the secondary stage to provide firm foundation for further learning in the subject.
- Expose the learners to different processes used in Physics-related industrial and technological applications.
- develop process - skills and experimental, observational, manipulative, decision making and investigatory skills in the learners.
- promote problem solving abilities and creative thinking in learners.
- develop conceptual competence in the learners and make them realize and appreciate the interface of Physics with other disciplines.

**PHYSICS (Code No. 042)**  
**Class XI - 2019 - 20 (Theory)**

Time: 3 hrs.

Max Marks: 70

	No. of Periods	Marks	
<b>Unit-I Physical World and Measurement</b>	<b>10</b>	<b>23</b>	
<b>Chapter-1: Physical World</b>			
<b>Chapter-2: Units and Measurements</b>			
<b>Unit-II Kinematics</b>	<b>24</b>		
<b>Chapter-3: Motion in a Straight Line</b>			
<b>Chapter-4: Motion in a Plane</b>			
<b>Unit-III Laws of Motion</b>	<b>14</b>		
<b>Chapter-5: Laws of Motion</b>			
<b>Unit-IV Work, Energy and Power</b>	<b>12</b>		
<b>Chapter-6: Work, Energy and Power</b>			
<b>Unit-V Motion of System of Particles and Rigid Body</b>	<b>18</b>	<b>17</b>	
<b>Chapter-7: System of Particles and Rotational Motion</b>			
<b>Unit-VI Gravitation</b>	<b>12</b>		
<b>Chapter-8: Gravitation</b>			
<b>Unit-VII Properties of Bulk Matter</b>	<b>24</b>	<b>20</b>	
<b>Chapter-9: Mechanical Properties of Solids</b>			
<b>Chapter-10: Mechanical Properties of Fluids</b>			
<b>Chapter-11: Thermal Properties of Matter</b>			
<b>Unit-VIII Thermodynamics</b>	<b>12</b>		
<b>Chapter-12: Thermodynamics</b>			
<b>Unit-IX Behaviour of Perfect Gases and Kinetic Theory of Gases</b>	<b>08</b>		
<b>Chapter-13: Kinetic Theory</b>			
<b>Unit-X Oscillations and Waves</b>	<b>26</b>		<b>10</b>
<b>Chapter-14: Oscillations</b>			
<b>Chapter-15: Waves</b>			
<b>Total</b>	<b>160</b>	<b>70</b>	

**Unit I: Physical World and Measurement****10 Periods****Chapter–1 : Physical World**

Physics - scope and excitement; nature of physical laws; Physics, technology and society.

**Chapter –2 : Units and Measurements**

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.

**Unit II: Kinematics****20 Periods****Chapter –3: Motion in a Straight Line**

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).

**Chapter– 4: Motion in a Plane**

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.

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

**Practical :**

3. To determine volume of an irregular lamina using screw gauge
4. To determine radius of curvature of a given spherical surface by a spherometer.

**Unit III: Laws of Motion**

**14 Periods**

**Chapter-5 : Laws of Motion**

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).

**Practical :**

5. To determine the mass of two different objects using a beam balance.
6. To find the weight of a given body using parallelogram law of vectors.

**Unit IV: Work, Energy and Power**

**12 Periods**

**Chapter-6: Work, Engery and Power**

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); nonconservative forces: motion in a vertical circle; elastic and inelastic collisions in one and two dimensions.

**Practical :**

7. Using a simple pendulum, plot its  $L-T^2$  graph and use it to find the effective length of second's pendulum.
8. To study variation of time period of a simple pendulum of a given length by taking bobs of same size but different masses and interpret the result.

**Unit V: Motion of System of Particles and Rigid Body      18 Periods**

**Chapter-7: System of Particles and Rotational Motion**

Centre of mass of a two-particle system, momentum conservation and centre of mass motion. Centre of mass of 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.

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.

**Practical :**

9. To study the relationship between force of limiting friction and normal reaction and to find the co-efficient of friction between a block and a horizontal surface.

**Unit VI: Gravitation**

**12 Periods**

**Chapter-8: Gravitation**

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.

**Practical :**

10. 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 by plotting graph between force and sin

**Unit VII: Properties of Bulk Matter**

**20 Periods**

**Chapter–9: Mechanical Properties of Solids**

Elastic behaviour, Stress-strain relationship, Hooke's law, Young's modulus, bulk modulus, shear modulus of rigidity, Poisson's ratio; elastic energy.

**Chapter–10: Mechanical Properties of Fluids**

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.

**Chapter–11: Thermal Properties of Matter**

Heat, temperature, thermal expansion; thermal expansion of solids, liquids and gases, anomalous expansion of water; specific heat capacity;  $C_p$ ,  $C_v$  - 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, Green house effect.

**Practical :**

11. To determine Young's modulus of elasticity of the material of a given wire.
12. To find the force constant of a helical spring by plotting a graph between load and extension.

**Unit VIII: Thermodynamics**

**12 Periods**

**Chapter–12: Thermodynamics**

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.

**Practical :**

13. To study the relationship between the temperature of a hot body and time by plotting a cooling curve.

**Unit IX: Behaviour of Perfect Gases and Kinetic Theory of Gases 08 Periods**

**Chapter–13: Kinetic Theory**

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.

**Practical :**

14. To study the relation between frequency and length of a given wire under constant tension using sonometer.

**Unit X : Oscillation and Waves**

**26 Periods**

**Chapter–14 : Oscillations and Waves**

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.

**Chapter–15: Waves**

**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.

**Practical :**

15. To study the relation between the length of a given wire and tension for constant frequency using sonometer

**Practicals**

**Total Periods : 60**

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

- Record of at least 15 Experiments with a minimum of 6 from each section, to be performed by the students.
- Report of the project to be carried out by the students.

**EVALUATION SCHEME**

**Time Allowed: Three hours**

**Max. Marks: 30**

<b>Two experiments one from each section</b>	<b>8+8 Marks</b>
<b>Practical record (experiment and activities)</b>	<b>6 Marks</b>
<b>Investigatory Project</b>	<b>3 Marks</b>
<b>Viva on experiments, activities and project</b>	<b>5 Marks</b>
<b>Total</b>	<b>30 Marks</b>

**Prescribed Books:**

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

**QUESTION PAPER DESIGN (Class: XI)**  
**Board Examination –Theory**

Maximum Marks: 70

Duration: 3 hrs.

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

**Practical: 30 Marks****Note:**

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

**MATHEMATICS (Code No. 041)****CLASS XI (2018-19)**

The Syllabus in the subject of Mathematics has undergone changes from time to time in accordance with growth of the subject and emerging needs of the society. Senior Secondary stage is a launching stage from where the students go either for higher academic education in Mathematics or for professional courses like Engineering, Physical and Bioscience, Commerce or Computer Applications. The present revised syllabus has been designed in accordance with National Curriculum Framework 2005 and as per guidelines given in Focus Group on Teaching of Mathematics 2005 which is to meet the emerging needs of all categories of students. Motivating the topics from real life situations and other subject areas, greater emphasis has been laid on application of various concepts.

**Objectives**

The broad objectives of teaching Mathematics at senior school stage intend to help the students:

- to acquire knowledge and critical understanding, particularly by way of motivation and visualization, of basic concepts, terms, principles, symbols and mastery of underlying processes and skills.

- to feel the flow of reasons while proving a result or solving a problem. to apply the knowledge and skills acquired to solve problems and wherever possible, by more than one method.
- to develop positive attitude to think, analyze and articulate logically.
- to develop interest in the subject by participating in related competitions.
- to acquaint students with different aspects of Mathematics used in daily life.
- to develop an interest in students to study Mathematics as a discipline.
- to develop awareness of the need for national integration, protection of environment, observance of small family norms, removal of social barriers, elimination of gender biases.
- to develop reverence and respect towards great Mathematicians for their contributions to the field of Mathematics.

### **COURSE STRUCTURE**

#### **CLASS XI (2019- 20)**

<b>One Paper</b>	<b>Total Period–240 [35 Minutes Each]</b>	
<b>Three Hours</b>		<b>Max Marks: 80</b>
<b>No. Units</b>	<b>No. of Periods</b>	<b>Marks</b>
I. Sets and Functions	60	23
II. Algebra	70	30
III. Coordinate Geometry	40	10
IV. Calculus	30	05
V. Mathematical Reasoning	10	02
VI. Statistics and Probability	30	10
	<b>Total</b>	<b>240</b>
	<b>Internal Assessment</b>	<b>20</b>

**Prescribed Books :**

1. Mathematics Textbook for Class XI, NCERT Publications
2. Mathematics Exemplar Problem for Class XI, Published by NCERT
3. Mathematics Lab Manual Class XI, published by NCERT

[http. : //www.ncert.nic.in/exemplar/labmanuals.html](http://www.ncert.nic.in/exemplar/labmanuals.html)

**Unit-I : Sets and Functions****Chapter 1-Sets****(20 Periods)**

Sets- Keywords - Set, empty set, finite set, infinite sets, equal sets, subsets, power set, universal set, venn diagram, union and intersection of sets, complement of a set.

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.

**Chapter 2 - Relations & Functions****(20 Periods)**

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  $\mathbb{R} \times \mathbb{R} \times \mathbb{R}$ ). 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.

## **Unit - II**

### **Chapter 4 - Principle of Mathematical Induction (10 Periods)**

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.

## **Unit -III**

### **Chapter 5- Complex Numbers and Quadratic Equations (15 Periods)**

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.

### **Chapter 6-Linear Inequalities**

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

## **Unit-IV**

### **Chapter 3- Trigonometric Functions (20 Periods)**

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  $\sin^2x + \cos^2x = 1$ , for all  $x$ . Signs of trigonometric functions. Domain and range of trigonometric functions and their graphs. Expressing  $\sin(x \pm y)$  and  $\cos(x \pm y)$  in terms of  $\sin x$ ,  $\sin y$ ,  $\cos x$  &  $\cos y$  and their simple applications. Deducing identities like the following:

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

$$\sin \alpha \pm \sin \beta = 2 \sin \frac{1}{2}(\alpha \pm \beta) \cos \frac{1}{2}(\alpha \mp \beta)$$

$$\cos \alpha + \cos \beta = 2 \cos \frac{1}{2}(\alpha + \beta) \cos \frac{1}{2}(\alpha - \beta)$$

$$\cos \alpha - \cos \beta = -2 \sin \frac{1}{2}(\alpha + \beta) \sin \frac{1}{2}(\alpha - \beta)$$

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  $\tan y = \tan a$ .

## Unit-V

### Chapter 7- Permutations and Combinations (10 Periods)

Fundamental principle of counting. Factorial  $n$ .  $(n!)$  Permutations and combinations, derivation of formulae for  $n_{pr}$  and  $n_{cr}$  and their connections, simple applications.

### Chapter 8- Binomial Theorem (10 Periods)

History, statement and proof of the binomial theorem for positive integral indices. Pascal's triangle, General and middle term in binomial expansion, simple applications.

## Unit - VI

### Chapter 12- Introduction to Three-dimensional Geometry (10 Periods)

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



## Chapter 9 - Sequence and Series

Sequence and Series. Arithmetic Progression (A. P.). Arithmetic Mean (A.M.) Geometric Progression (G.P.), general term of a G.P., sum of n terms of a G.P., infinite G.P. and its sum, geometric mean (G.M.), relation between A.M. and G.M. Formulae for the following special sums.

$$\sum_{k=1}^n k, \sum_{k=1}^n k^2 \text{ and } \sum_{k=1}^n k^3$$

## Unit-VII

### Chapter 10 - Straight Lines

(10 Periods)

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.

## Unit-VIII

### Chapter 11-Conic Sections

(20 Periods)

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.

## **Unit-IX**

### **Chapter 14 - Statistics (15 Periods)**

Measures of Dispersion: Range, Mean deviation, variance and standard deviation of ungrouped/grouped data. Analysis of frequency distributions with equal means but different variances.

### **Chapter 15 -Probability (15 Periods)**

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.

## **Unit- X**

### **Chapter 13-Limits and Derivatives (30 Periods)**

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.

### **Chapter 14- Mathematical Reasoning (10 Periods)**

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.

**Activities :** Any 10 activities from the Math Lab Manual prescribed by NCERT.

### Question Wise Break Up

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

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

**Choice (s) :**

There will be no overall choice in the question paper.

However, 33 % internal choices will be given in all the sections.

**INTERNAL ASSESSMENT** **20 Marks**

Periodic Test (Best 2 out of 3 tests conducted) 10 Marks

Mathematics Activities 10 Marks

Note : For activities NCERT Lab Manual may be referred

## **Syllabus for Class-XI**

### **Subject : Biology (Code No. 044)**

**Prescribed Book :** A text book of biology by NCERT

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

#### **Objectives of teaching Biology**

- promote understanding of basic principles of Biology
- encourage learning of emerging knowledge and its relevance to individual and society.
- promote rational/scientific attitude to issue related to population, environment and development.
- enhance awareness about environmental issues, problems and their appropriate solutions.
- create awareness amongst the learners about diversity in the living organisms.

- appreciate that the most complex biological phenomena are built on essentially simple processes.

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

### Course Structure Class XI (Theory)

Unit	Title	No of Periods	Marks
1.	Diversity of Living Organisms	23	10
2.	Structural Organisation in plants and animals	23	12
3.	Cell: Structure and Function	34	14
4.	Plant Physiology	40	17
5.	Human Physiology	40	17
<b>Total</b>		<b>160</b>	<b>70</b>

### Unit - I

#### Chapter - The Living World

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.

**Practicals: Study parts of a compound microscope.**

#### Chapter-2 : Biological Classification

Five kingdom classification; Salient features and classification of Monera, Protista and Fungi into major group: Lichens, Viruses and Viroids.

### UNIT-II

#### Chapter-3: Plant Kingdom

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.

**Practicals:**

- a) 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.
- b) Separation of plant pigments through paper chromatography.

**Chapter-4: Animal Kingdom**

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).

(No live animals or specimen should be displayed.)

**Practicals:** Study of virtual Specimens/slides/ models and identification with reasons - Amoeba, Hydra, liverfluek, Ascaris, leech, earthworm, prawn, silkworm, honeybee, snail, starfish, shark, rohu, frog, lizard, pigeon and rabbit.

**Unit -III**

**Chapter-5: Morphology of Flowering Plants**

Morphology and modification: Morphology of different parts of flowering plant: root, stem, leaf, inflorescence, flower, fruit and seed (to be dealt along with the relevant experiment of the Practical Syllabus).

Practicals:

- i) 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) including dissection and display of floral

whorls, anther and ovary to show number of chambers (floral formulae and woody); leaf (arrangement, shape, venation, simple and compound).

- ii) Study of different modifications in roots, stems and leaves.
- iii) Study and identification of different types of inflorescence (cymose and racemose).

### **Chapter-6 : Anatomy of Flowering Plants**

Anatomy and functions of different tissues and tissue systems.

#### **Practicals:**

- i) Preparation and study of T.S. of dicot and monocot roots and stems (Primary).
- ii) Study of distribution of stomata in the upper and lower surface of leaves.
- iii) 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.

## **UNIT-IV**

### **Chapter-7 : Structural Organisation in Animals**

Animal tissue; Morphology, anatomy and functions of different systems (digestive, circulatory, respiratory, nervous and reproductive) of an insect (cockroach). (a brief account only)

**Practicals:** Study of external morphology of cockroach through virtual images/ models.

### **Chapter-8: Cell-the Unit of Life**

Cell theory and cell as the basic unit of life: Structure of prokaryotic and eukaryotic cell; 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.

## UNIT -V

### Chapter-9: Biomolecules

Chemical constituents of living cells: biomolecules, structure and function of proteins, carbohydrates, lipids, nucleic acids; Enzymes- types, properties, enzyme action.

**Practicals:** Test for the presence of sugar, starch, proteins and fats. Detection in suitable plant and animal materials.

### Chapter-10: Cell Cycle and Cell Division

Cell cycle, mitosis, meiosis and their significance

**Practicals:** Study of mitosis in onion root tip cells and animal cells (grasshopper) from permanent slides.

## UNIT - VI

### Chapter -11: Transport in Plants

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, translocation of mineral nutrients- Transport of food, phloem transport, mass flow hypothesis.

**Practicals:** 1. Study of osmosis by potato osmometer.

2. Study of plasmolysis in epidermal peels (e.g. Rhoeo leaves).

3. comparative study of the rates of transpiration in the upper and lower surface of leaves.



4. Study of imbibition in seeds/ raisins.

### **Chapter-12: Mineral Nutrition**

Essential minerals, macro- and micronutrients and their role; deficiency symptoms; mineral toxicity; elementary idea of hydroponics as a method to study mineral nutrition; nitrogen metabolism, nitrogen cycle, biological nitrogen fixation.

### **Chapter-15: Plant- Growth and Development**

seed germination; phases of plant growth and plant growth rate; differentiation, dedifferentiation and redifferentiation; sequence of developmental processes in a plant cell; growth regulators - auxin, gibberellin, cytokinin, ethylene, ABA; seed dormancy; vernalisation; photoperiodism.

Practical:. Observation and comments on the experimental set up for showing:

- a) Anaerobic respiration
- b) Phototropism
- c) Effect of apical bud removal

## **UNIT- VII**

### **Chapter-13: Photosynthesis in Higher Plants**

Photosynthesis as a means of autotrophic nutrition; site of photosynthesis, pigments involved in photosynthesis (elementary idea); photochemical and biosynthetic phase of photosynthesis; cyclic and non- cyclic photosynthesis; chemiosmotic hypothesis; photorespiration; C<sub>3</sub> and C<sub>4</sub> pathways; factors affecting photosynthesis.

### **Chapter -14: Respiration in Plants**

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.

**Practicals:** Study of the rate of respiration in flower buds/ leaf tissue and germinating seeds.

### **Unit - VIII**

#### **Chapter- 16: Digestion and Absorption**

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.

#### **Chapter-17: Breathing and Exchange of Gases**

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.

#### **Chapter-18: Body Fluids and Circulation**

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.

### **Unit - IX**

#### **Chapter-19: Excretory Products and Their Elimination**

Modes of excretion- ammonotelism, ureotelism; human excretory system - structure and function; urine formation, osmoregulation; regulation of kidney function- renin - angiotensin, atrial natriuretic factor, ADH and diabetes

insipidus; role of other organs in excretion; disorders - uraemia, renal failure, renal calculi, nephritis; dialysis and artificial kidney, transplant.

**Practical:** a) Test for presence of urea in urine.

b) Test for presence of sugar in urine.

c) Test for presence of albumin in urine.

d) Test for presence of bile salts in urine.

### **Chapter- 20: Locomotion and Movement**

Types of movement - ciliary, flagellar, muscular; skeletal muscle- contractile proteins and muscle contraction; skeletal system and its function; joints; disorders of muscular and skeletal system- myasthenia gravis, tetany, muscular dystrophy, arthritis, osteoporosis, gout.

**Practical :** Study of human skeleton and different types of joints with the help of virtual images/ models only.

## **Unit- X**

### **Chapter-21: Neural Control and Coordination**

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

### **Chapter-22: Chemical Coordination and Integration**

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.

## PRACTICALS

**Time Allowed : Three hours**

**Max. Marks : 30**

<b>Evaluation Scheme</b>		
One Major Experiment Part A (Experiment No- 1,3,7,8)		5 Marks
One Minor Experiment Part A (Experiment No- 6,9,10,11,12,13)		4 Marks
Slide Preparation Part A (Experiment No- 2,4,5)		5 Marks
Spotting Part B		7 Marks
Practical Record+Viva Voce	Credit to the students' work over the academic session may be given	4Marks
Practical Record+Viva Voce		5 Marks

### **Prescribed Books :**

1. Biology Class - XI, Published by NCERT
2. Other related books and manual brought out by NCERT (consider multimedia also)

**BIOLOGY (Code No. 044)**  
**QUESTION PAPER DESIGN**  
**Class - XI (2018-19)**

**(1) Board Examination - Theory**

**Time: 3 Hours**

**Max. Marks: 70**

S.No	Typology of Question	Very Short Answer (VSA) (1 Marks)	Short Answer-I (SA-I) (2 Marks)	Short Answer-II (SA-II) (3 Marks)	Long Answer (LA) (5 Marks)	Total Marks	% Weightage
1	Remembering- (Knowledge based Simple recall questions, to know specific facts, terms, concepts, principles, or theories, Identify, define or recite, information)	2	1	1	—	7	10%
2	Understanding: (Comprehension-to be familiar with meaning and to understand conceptually, interpret, compare, contrast explain, paraphrase information)	—	2	4	1	21	30%
3	Application : (Use abstract information in concrete situation, to apply knowledge to new situations, Use given content to interpret a situation, provide a example, or solve a problem)	—	2	4	1	21	30%
4	High Order Thinking Skills- (Analysis & Synthesis- Classify, compare, contrast, or differentiate between different pieces of information, Organize and/or integrate unique pieces of information from a variety of sources)	2	1	1	1	12	17%
5	Evaluation - (Appraise, judge, and/or justify the value or worth of a decision or outcome, or to predict outcomes based on values)	1	1	2	—	09	13%
<b>TO T A L</b>		<b>5×1=5</b>	<b>7×2=14</b>	<b>12×3=36</b>	<b>3×5=15</b>	<b>70(26)</b>	<b>100%</b>

**(2) Practical : 30 Marks, Duration : 3 Hours**

**SYLLABUS FOR CLASS XI**  
**SUBJECT - CHEMISTRY (043)**

**Prescribed Books :**

- 1. Chemistry Part-I, Class -XI, Published by NCERT.**
- 2. Chemistry Part-II, class-XI, Published by NCERT.**

**Rationale**

Senior Secondary state of school curriculum is a stage of transition from general education to content oriented courses. Therefore, there is a need to provide learners with sufficient conceptual background of Chemistry, which will make them competent to meet the challenges of academic and professional courses after the senior secondary stage. The new and updated curriculum of chemistry is based on disciplinary approach with rigour and depth taking care that the syllabus is comparable to the international level. The knowledge related to the subject of Chemistry has undergone tremendous changes. Greater emphasis has been laid on use of new nomenclature, symbols and formulations, teaching of fundamental concepts, application of concepts in chemistry to industry/ technology, logical sequencing of units, removal of obsolete content and repetition, etc.

**Objectives**

The broad objectives of teaching Chemistry at Senior Secondary Stage are:

- to promote understanding of basic facts and concepts in chemistry while retaining the excitement of chemistry.
- to expose the students to various emerging new areas of chemistry and apprise them with their relevance in future studies and their application in various spheres of chemical sciences and technology.
- to develop problem solving skills in students.
- to expose the students to different processes used in industries and their technological applications.

- to acquaint students with different aspects of chemistry used in daily life.
- to develop an interest in students to study chemistry as a discipline.

Unit No.	Title	No of Periods	Marks
Unit I:	Some Basics Concepts of Chemistry	12	11
Unit II:	Structure of Atom	14	
Unit III:	Classification of Elements and Periodicity in Properties	08	04
Unit IV:	Chemical Bonding and Molecular Structure	14	21
Unit V :	States of Matter : Gases and Liquids	12	
UnitVI :	Chemical Thermodynamics	16	
Unit VII :	Equilibrium	14	
Unit VIII :	Redox Reactions	06	
Unit IX :	Hydrogen	08	16
Unit X :	s-Block Elements	10	
Unit XI :	p-Block Elements	14	
Unit XII:	Organic Chemistry :Some basic Principles and Techniques	14	
UnitXIII :	Hydrocarbons	12	18
UnitXIV :	Environmental Chemistry	06	
<b>Total</b>		<b>160</b>	<b>70</b>

#### Practicals (Evaluation Scheme)

Volumetric Analysis	08
Salt Analysis	08
Content Based Experiment	06
Project Work	04
Practical Record Book and Viva	04
<b>Total</b>	<b>30</b>

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



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

### QUESTION WISE BREAK UP

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

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

**Choice(s):**

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

**QUESTION WISE BREAK UP(PERIODIC ASSESMENT)**

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

**UNIT 1****Some Basics Concepts of Chemistry****(12 Periods)**

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.

**Working Words**

Significant figures, Gram molecular mass, Mole, Molarity, Molarity, Molality, limiting reagent, Molecular formula, Empirical formula

**Practical-** Teacher will make the students familiar with various laboratory's apparatus such as volumetric apparatus, measuring cylinders, weighing balance and various laboratory's techniques.

## **Unit 2:**

### **Structure of Atom**

**(14 Periods)**

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.

#### **Working Words**

Isotopes, Isobars, Isolelectronic, Electromagnetic radiations, Spectrum, Wavelength: Frequency, Velocity, Orbital, Orbit, Electronic Configuration, Quantum number.

### **Classification of Elements and Periodicity in Properties**

**(8Periods)**

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

#### **Working Words**

s- block, p- block, d- block, f- block, Atomic radius, Amphoteric oxide,Electronegativity, Metallic Character, Screening Effect, Penetration Effect, Ionization enthalph.

**Practical** - Crystallization of impure sample of any one of the following: Alum, Copper Sulphate, Benzoic Acid.

## **Unit 3:**

### **Chemical Bonding and Molecular Structure**

**(14 Periods)**

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.

### **Working Words**

Lewis concept, Molecular orbital, Atomic orbitals, Hydrogen bonding, Bonding orbital, Anti bonding orbital, Hybridization, Sigma bond, Pie bond, Dipole moment, Partial ionic character, VSEPR theory, Paramagnetic, Diamagnetic, Bond Order, Bond length.

**Practical-** Determination of pH of some solutions obtained from fruit juices, solution of known and varied concentrations of acids, bases and salts using pH paper.

### **States of Matter: Gases and Liquids (12 Periods)**

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' 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) Liquid State- vapour pressure, viscosity and surface tension (qualitative idea only, no mathematical derivations).

### **Working Words**

Absolute Zero, Van der waal's forces, Van der waal's constants, Compressibility factor, Vapour pressure, Surface tension, Viscosity, Gas constant.

### **4: Equilibrium (14 Periods)**

Equilibrium in physical and chemical processes, dynamic nature of equilibrium, law of mass action, equilibrium constant, factors affecting

equilibrium - Le Chatelie'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).

### **Working Words**

Equilibrium, physical equilibrium, Chemical equilibrium, Saturated solution, Dynamic, Dynamicity, Equilibrium constant, Dissociation, Homogeneous, Precipitation, Amphoteric substances, Conjugate acid - base pairs, Heterogeneous, Catalyst, PH, Buffer, Solubility product.

### **Environmental chemistry (6 Periods)**

Environmental pollution - air, water and soil pollution, chemical reactions in atmosphere, smog, major atmospheric pollutants, acid rain, ozone and its reactions, 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.

### **Working Words**

Environmental chemistry, Acid rain, Green House Effect, Green chemistry, Fog, Smoke, Mist, BOD, COD, Ozone layer depletion, photochemical smog, Classical smog,

**Practical-** Study the pH change by common- ion in case of weak acids and weak bases.

### **Unit 5:**

### **Organic Chemistry - Some Basic Principles and Technique (4 Periods)**

General introduction, methods of purification, qualitative and quantitative analysis, classification and IUPAC nomenclature of organic compounds. Electronic displacements in a covalent bond: inductive effect, electromeric

effect, resonance and hyper conjugation. Homolytic and heterolytic fission of a covalent bond: free radicals, carbocations, carbanions, electrophiles and nucleophiles, types of organic reactions.

### **Working Words**

Tetravalency, Catenation, Functional groups, Homologous series, Isomerism, Heterolytic Cleavage, Homolytic Cleavage, Carbocation, Carboanion, Free radical, Nucleophiles, Electrophiles, Inductive Effect, Electromeric effect, Resonance Effect, Hyperconjugation, Qualitative Analysis, Quantitative Analysis, Sigma bond, Pi bond.

### **Practical-**

- (1) Preparation of standard solution of Oxalic acid.
- (2) Determination of Strength of a given solution of Sodium Hydroxide by titrating it against standard solution of Oxalic acid.

### **Unit 6:**

#### **Chemical Thermodynamics (16 Periods)**

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  $U$  and  $H$ , 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).

### **Working Words**

Open System, Closed System, Isolated system, State Functions, Internal Energy, Isothermal Process, Adiabatic Process, Isochoric Process, Isobaric

Process, Enthalpy, Specific heat capacity, Spontaneous Process, Entropy, Gibbs Free Energy.

**Practical-**

- (1) Preparation of standard solution of Sodium Carbonate.
- (2) Determination of strength of a given solution of Hydrochloric acid by titrating it against standard Sodium Carbonate solution.

**Unit 7: Hydrocarbons**

**(12 Periods)**

**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' addition and peroxide effect), ozonolysis, oxidation, mechanism of electrophilic addition.

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, halogenations, Friedel Craft's alkylation and acylation, directive influence of functional group in monosubstituted benzene. Carcinogenicity and toxicity.

**Working Words**

Acyclic, Aliphatic, Alicyclic, Aromatic, Alkane, Alkene, Alkyne, Combustion, substitution, Halogenations, Sulphonation, Nitration, Addition, Oxidation, Conformational isomerism, Optical Isomerism, Ozonolysis.

## **Unit 8: s-Block Elements (Alkali and Alkaline Earth Metals) (10 Periods)**

### **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.

Preparations and Properties of Some 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.

### **Working Words**

Sparingly soluble, Thermal stability, Solvay process, Anomalous behavior, Diagonal relationship, alkaline earth metals, Ionization enthalpy

Practical- Determination of one cation and one anion in given salt.

Practical- Determination of cation

Practical- Determination of anion

## **Unit 9: Some p- Block Elements (14 Periods)**

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 alkalies, 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 few uses: Silicon Tetrachloride, Silicones, Silicates and Zeolites, their uses.

### **Working Words**

Diborane, Ionization energy, Electropositive (or metallic) character, Anomalous properties, Electro negativity, Allotropes, Silicones, Silicates, Zeolites.

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

(Note: Insoluble salts excluded)

### **Unit 10: Redox Reaction (6 Periods)**

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.

### **Working Words**

Oxidation, Reduction, Oxidation number, Oxidizing agent, Reducing agent, Standard Electrode Potential.

### **Hydrogen**

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

### **Working Words**

Ionic hydride, Molecular hydride, Deficient hydride, Calgon, Hard water, Amphoteric, Oxidizing agent, Reducing agent.

Practical: Determination of one anion and cation in give salt.

## **ACCOUNTANCY (CODE 055)**

### **SYLLABUS FOR CLASS-XI**

Books Recommended: (1) Financial Accounting I and II (NCERT)

#### **RATIONALE**

The course in Accountancy is introduced at +2 stage of Senior Secondary education, as formal commerce education is provided after first ten years of schooling. With the fast changing economic scenario and business environment in a state of continuous flux, elementary business education along with accountancy as the language of business and as a source of financial information has carved out a place for itself at the Senior School stage. Its syllabus content should give students a firm foundation in basic accounting principles and methodology and also acquaint them with the changes taking place in the presentation and analysis of accounting information, keeping in view the development of accounting standards and use of computers.

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

In class XII, Accounting for Partnership Firms and Companies are to be taught as a compulsory part. Students will also be given an opportunity to understand

further about Computerized Accounting System, as an optional course to Analysis of Financial Statements.

**Objectives:**

- To familiarize the students with accounting as an information system;
- To acquaint the students with basic concepts of accounting and accounting standards;
- To develop the skills of using accounting equation in processing business transactions;
- To develop an understanding about recording of business transactions and preparation of financial statements;
- To enable the students with accounting for reconstitution and dissolution of partnership firms;
- To enable the students to understand and analyse the financial statements; and
- To familiarize students with the fundamentals of computerized system of accounting.

**UNIT WISE DISTRIBUTION**

**ONE PAPER**

**Theory : 80 Marks**

**Practical : 20 Marks**

**3 Hours**

**THEORY DISTRIBUTION**

<b>Units</b>	<b>Periods</b>	<b>Marks</b>
<b>Part A: Financial Accounting-1</b>		
Unit-1: Theoretical Framework	25	12
Unit-2: Accounting Process	105	40
	125	52

## Part B: Financial Accounting-II

Unit-3: Financial Statements of Sole Proprietorship from

Complete and Incomplete Records 55 20

Unit-4: Computers in Accounting 15 08

70 28

Part C: Project Work 20 20

### Suggested Question Paper Design

Accountancy (Code No. 055) Class XI (2019 - 20)

Marks: 80

Duration: 3 hrs.

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

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

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

**UNIT TEST** **(25 Marks)**

1 Marks -5 Questions

3 Marks -2 Questions

4 Marks -2 Questions

6 Marks -1 Questions

**TERMINAL EXAMINATION** **(80 Marks)**

1 Marks -20 Questions

3 Marks -2 Questions

4 Marks -5 Questions

6 Marks -3 Questions

8 Marks -2 Questions

**Part A : Financial Accounting-1**

**Unit 1 : Introduction to Accounting** **(10 Periods)**

**Introduction to Accounting**

- Accounting-Concept objective, advantages and limitations, types of accounting information users of accounting information and their need, Qualitative Characteristics of Accounting Information, Role of Accounting in Business.

- Basic accounting terms : Business transaction, account, capital, drawings, liability (Non-current and current); asset (Non-current; Fixed Assets, tangible and intangible assets and current assets), receipts (capital and revenue), expenditure (capital, revenue and deferred), expense, income, profits, gains and losses, purchases, purchases returns, sales returns, stock, trade receivables (debtors and bill receivable), trade payables (creditors and bill payable), goods, cost, vouchers, discount-trade and cash.

**Unit 2 : Theory Base of Accounting (20 Periods)**

- Fundamental accounting assumptions; GAAP: Concept; going concern, consistency, and accrual.
- Accounting Principles : accounting entity, money, measurement, accounting period, full disclosure, materiality, prudence, cost concept, matching concept and dual aspect.
- Accounting Standards : Applicability in India AS.
- GST : Characteristics and objectives.
- Double entry system of Accounting-Basis of Accounting Cash and Accrual Basis.
- Vouchers and Transactions; Source document and Vouchers, preparation of Vouchers.
- Rule of debit and credit : for assets, liabilities, capital, revenue and expenses.
- Key Words : Book Keeping, Accounting, Debtors, Creditors, Capital items, Revenue items, Loss, Capital, Stock, Expenses, Income, Capital, Drawing, Purchase, Sales, Profit and Gain.

Activity :- Collection of source document (Scrap file)

**Unit-3 Accounting Process and Recording of Business Transactions, Ledger and Trial Balance (Periods 25)**

- Accounting equation Approach : Meaning and analysis of transactions using accounting equation
- Books of original entry : format and recording-Journal.
- Ledger- format, posting from journal, cash book and other special purpose books, balancing of accounts.
- Trial balance : objective and preparation
- (Scope : Trial Balance with balance method only)
- Key Words : Ledger, Casting, Balancing, Totaling, Posting, Trial Balance, Error, Bank Reconciliation Statement, Bank Overdraft, Dishonour of Cheque, Suspense account.

**Unit 4 : Cash Book and Special Purpose Books (15 Periods)**

- Cash Book : Simple Cash Book with Bank Column and Petty Cash Book.
- Other books : purchases book, sales book, purchases returns book, sales returns book. (Simple GST calculation)

**Unit 5 (A) Preparation of Bank Reconciliation Statement (25 Periods)**

Bank reconciliation statement-concept, calculating bank balance at an accounting date: need and preparation adjusted cash book, Corrected cash book balance.

**5 (B) Depreciation, Provisions and Reserves**

**Depreciation** : concept, need and factors affecting depreciation; methods of computation of depreciation : straight line method, written down value method (excluding change in method)

Accounting treatment of depreciation: by charging to asset account, by creating provision for depreciation/accumulated depreciation account, treatment of disposal of asset.

Provisions and reserves : concept, objectives and difference between provisions and reserves types of reserves-revenue reserve, capital reserve, general reserve and specific reserves.

**Key Words :** Depreciation, Obsolete, Amortization, Depletion, Diminishing Balance, scrap Value, Provision, Reserve, Capital Reserve, Revenue reserve, Secret Reserve, Capital profits.

**Activity** (a) Visit to bank

(b) Collection of bank documents

(c) To Prepare a Bank Reconciliation statement with cash book and balance (with 10 to 12 transactions)

**Unit 6 :**

**Rectification of Errors**

- Errors : types-errors of omission, commission , principles and compensating; their effect on Trail Balance.
- Detection and rectification of errors; preparation of suspense account.

Key Words: Errors of omission, Errors of commission, Suspense account, rectifying entries, Wrong posting.

**Unit 7 Accounting for Bill of Exchange (35 Periods)**

- Bills of exchange and promissory note: definition, features, parties, parties, specimen and distinction.
- Important terms : term of bill, due date, days of grace, date of maturity, discounting of bill, endorsement of bill, bill sent for collection, dishonor of bill, noting of bill, retirement and renewal of a bill.
- Accounting treatment of bill transactions.

**Key Words :-** Bills of Exchange, Negotiable instrument, Promissory note, Drawer, Drawee, Maker, Dishonor, Discounting, Renewal, Rabate, Endoresment.



**Activity :-**

Collection of different kinds of negotiable instruments of different companies.

**PART-B FINANCIAL ACCOUNTING-II**

**Unit 8 Financial Statements of Sole Proprietorship from complete records  
(30 Periods)**

- Financial Statements : Meaning, objective and importance.
- Trading Profit and loss account: gross profit, operating profit and net profit.
- Balance Sheet : need, grouping, marshalling of assets and liabilities.
- Adjustments in preparation of financial statements : with respect to closing stock, outstanding expenses, prepaid expenses, accrued income, income received advance, depreciation, bad debts, provision for doubtful debts, provision for discount on debtors, manager's commission, abnormal loss, goods taken for personal use/staff welfare and goods distributed as free samples, interest on capital.
- Preparation of Trading and Profit and Loss Account and Balance Sheet of sole Proprietorship.

**Key Words :-** Closing stock, outstanding expenses, prepaid expenses, accrued income, income received in advance, depreciation, bad debts, provision for doubtful debts, provision for discount on debtors, manager's commission, abnormal loss, goods taken for personal use and goods distributed as free samples.

**Activity :** Comprehensive Project

**Unit 9 – Account for incomplete records (Periods-10)**

Incomplete Records.

Meaning, features, reasons and limitations of single entry system.

Ascertainment of profit/loss by statement of affairs method.

**Unit 10- Computers in Accounting (20 Periods)**

- Introduction to Computer and Accounting information System {AIS} : Introduction to computer (Elements, Capabilities, Limitations of Computer system),
- Introduction to operating software, utility software and application software. Introduction to Accounting Information System (AIS), as part of MIS
- Automation of Accounting Process, Meaning
- Stages in automation (a) Accounting process in a computerized environment (Comparison between manual accounting process and Computerised accounting process.) (b) Sourcing of accounting Software
- (Kinds of software : readymade software; and tailor-made software; Generic Considerations before sourcing accounting software) (c) Creation of Account groups and hierarchy (d) Generation of reports-Trial balance, Profit and Loss account and Balance Sheet.

**Project Work (Any One) 20 Marks (20 Periods)**

1. Collection of Source Documents, Preparation of Vouchers, Recording of Transaction with the help of vouchers.
2. Preparation of Bank Reconciliation Statement with the given cash book and the pass book with twenty to twenty-five transactions.
3. Comprehensive project starting with journal entries regarding any sole proprietorship business, posting them to the ledger and preparation of Trial balance. The students will then prepare Trading and profit and loss Account on the basis of the prepared trail balance. Expenses, incomes and profit (loss) are to be depicted using pie chart/bar diafram.

## **Syllabus for Class -XI**

### **Subject: Business Studies (Commerce)**

**Book :- NCERT (Business Studies)**

#### **"Rationale'**

The courses in Business Studies and Accountancy are introduced at +2 stage of Senior Secondary Education as formal commerce education is provided after first ten years of schooling. Therefore, it becomes necessary that instructions in these subjects are given in such a manner that students have a good understanding of the principles and practices bearing in business (trade and industry) as well as their relationship with the society.

Business is a dynamic process that brings together technology, natural resources and human initiative in a constantly changing global environment. To understand the framework in which a business operates, a detailed study of the organisation and management of business processes and its interaction with the environment is required. Globalisation has changed the way organizations transact their business.

Information Technology is becoming a part of business operations in more and more organisations. Computerised systems are fast replacing other systems. Ebusiness and other related concepts are picking up fast which need to be emphasized in the curriculum.

The course in Business Studies will prepare students to analyse, manage, evaluate and respond to changes which affect business. It provides a way of looking at and interacting with the business environment. It recognizes the fact that business influences and is influenced by social, political, legal and economic forces. It allows students to appreciate that business is an integral component

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

### **Objectives**

- To develop in students an understanding of the processes of business and its environment.
- To acquaint students with the dynamic nature and inter-dependent aspects of business.
- To develop an interest in the theory and practice of business, trade and industry.
- To familiarize candidates with theoretical foundations of organizing, managing and handling operations of a business firm.
- To acquaint students with the practice of managing the operations and resources of business.
- To develop in students a business attitude and skills to be precise and articulate.
- To help students appreciate the economic and social significance of business activity and the social cost and benefits arising there from.
- To prepare students to function more effectively and responsibly as Consumers, employers, employees and citizens
- To help students in making the transition from school to the world of work including self-employment.

**Books Recommended: (1) Business Studies (NCERT)**

**One Paper**

**100 Marks**

**3 Hours**

<b>Units</b>		<b>Periods</b>	<b>Marks</b>
<b>Part A Foundations of Business</b>			
1	Evolution and Fundamentals of Business	18	16
2	Forms of Business Organizations	24	
3	Public, Private and Global Enterprises	18	14
4	Business Services	18	
5	Emerging Modes of Business	10	10
6	Social Responsibility of Business and Business Ethics	12	
		<b>100</b>	<b>40</b>
<b>Part B Finance and Trade</b>			
7	Sources of Business Finance	30	20
8	Small Business	16	
9	Internal Trade	30	20
10	International Business	14	
11	Project Work	30	20
		<b>120</b>	<b>60</b>

**PRACTICAL DISTRIBUTION :**

**The marks will be allocated on the following heads,**

2 Mark : Initiative, cooperativeness and participation

2 Marks : Creativity in presentation

4 Marks : Content, observation and research work

4 Marks : Analysis of situation

8 Marks : Viva

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

Marks: 80

Duration: 3 hrs.

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

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

**Formative Assessment : 25: Marks**

1 Mark : (5 questions)

3 Marks : (3 questions)

5 Marks : (1 question)

6 Marks : (1 questions)

(One question will be a value based questions)

**Summative Assessment 80 : Marks**

1 Mark : (20 questions)

3 Marks : (5 questions)

4 Marks : (3 question)

5 Marks : (3 question)

6 Marks : (3 questions)

**Part -A : Foundations of Business**

**UNIT -1 Evolution and Fundamentals of Business**

**Technical Words :** Business, Profession, Employment, Industry, Commerce, Trade, Aids to trade, Business Risk.

- (a) History of Commerce in India : Indigenous Banking System, Rise of intermediaries, Transport, Trading Communities: Merchant Corporations, Major trade Centres, Major Imports and Exports, Position of Indian Sub-Continent in the World economy, Concept and characteristics of Business.
- (b) Business, Profession and Employment-distinctive features.
- (c) Objectives of Business-economic and social, role of profit in business.
- (d) Classification of Business Activities: Industry and commerce
- (e) Industry and its types: Primary secondary and tertiary (meaning and subgroups)

- (f) Commerce - Trade: Types (internal, external wholesale and retail; and auxiliaries to trade : banking, insurance, transportation, warehousing, communication, and advertising.
- (g) Business Risks. Nature and causes

### **UNIT -2 Forms of Business Organisations**

**Technical Words:** Sole proprietorship, partnership, HUF, Co-operative society, Company, MOA, AOA, Prospects.

- (a) Sole Proprietorship and Joint Hindu Family Business- meaning, features, merits and limitations.
- (b) Partnership-meaning, types, Registration, Types of Partners. Partnership Deed, Merits and limitations of partnership and partners.
- (c) Hindu Undivided Family Business: features
- (d) Cooperative Societies-features, types, merits and limitations
- (e) Company-Private Ltd., Public company- features, merits and limitations.
- (f) Formation of company-stages
- (g) Starting a Business - Basic Factors

### **UNIT -3 Public Private and Global Enterprises**

**Technical Words :** Private Sector, Public Sector, Departmental undertaking, Statutory Corporation, Government company, Global enterprises, Joint Venture, PPP.

- (a) Private Sector and Public Sector Enterprises
- (b) Forms of public sector enterprises: features, merits and limitations of department undertaking, statutory corporation and Government Company.
- (c) Changing role of public sector enterprises.
- (d) Global enterprises, Joint ventures, Public Private Partnership-features



#### **UNIT -4 Business Services**

**Technical Words :** Banking, Insurance, NEFT, RTGS Bank overdraft, Cash Credit, E-Banking, Postal Service, Telecom Services

- (a) Banking: Types of bank accounts-savings, current, recurring, fixed deposit and multiple option deposit account.
- (b) Banking services with particular reference to issue of bank draft, banker's cheque (Pay order). RTGS (Real Time Gross Settlement) NEFT (National Electronic Funds Transfer), bank overdraft, cash credits and e-banking.
- (c) Insurance-Principles concept of life, health, fire and marine insurance.
- (d) Postal and Telecom Services: mail (UPC, registered post, parcel, speed post and courier and other services

Activity: Scrap book on bank documents.

#### **UNIT- 5 Emerging modes of Business**

**Technical Words :** E-Business, Online transaction, BPO, KPO, ATM, Smart cards.

- (a) E-Business- scope, benefits, Resources required for successful e-business implementation, On-line transactions, payment mechanism, security and safety of business transactions:
- (b) Outsourcing - concept, need and scope of BPO (business process outsourcing and KPO (knowledge process outsourcing)
- (c) Smart cards and ATM's meaning and utility

#### **UNIT -6 Social Responsibility of Business and Business Ethics**

**Technical Words :** Social responsibility, Owner, Investors, Consumers, Employees, Community, Environment.

- (a) Concept of social responsibility.
- (b) Case for social responsibility

- (c) Responsibility towards owners, Investors, Employees, consumer, Government & Community.
- (d) Environmental Protection and business.

**Activity:** Pictorial file on Pollution

## **Part B: Finance and Trade**

### **UNIT-7 Sources of business finance**

**Technical Words:** Business finance, Equity share, Preference share, GDR, ADR, IDR, Retained earnings, Debentures, Public deposit, Trade credit, ICD

- (i) Concept of business finance.
- (ii) Owner's funds- equity shares, preference shares, GDR, ADR & IDR and retained earnings.
- (iii) Borrowed funds-debentures and bonds, loan from financial institutions loans, from commercial banks, public deposits, trade credit, ICD (inter corporate deposits).

**Activity :** Business Quiz on Sources of Finance

### **UNIT -8 Small Business and Enterprises**

**Technical Words :** Small Business, Micro Enterprises, Medium Enterprises, DIC, NSIC

- (i) Entrepreneurship Development - Concept, characteristics and Need. Process of ED, startup India Scheme, Ways to find startup, Intellectual Property rights and Entrepreneurship.
- (ii) Small scale enterprises as defined by MSMED Act 2006 (Micro, Small and Medium Enterprises Development Act)

- (iii) Role of small business in India with special reference to Rural Areas
- (iv) Government schemes and agencies for small scale industries: NSIC (National Small industries Corporation) and DIC (District Industries Centre) with special reference to rural and backward areas.

### **UNIT-9 Internal Trade**

**Technical Words :** Wholesaler, Retailer, Departmental stores, Chain Stores, Mail order business, Automatic vending machine, COD, FOB, CIF

- (a) Services rendered by a wholesaler and a retailer
- (b) GST (Goods and Services Tax): Concept and key - features
- (c) Types of retail trade-itinerant, small, scale fixed shops Retailers
- (d) Large scale retailers (concept) - departmental stores, chain stores, mail order business.

### **UNIT -10: International Trade**

**Technical Words :** External trade, Export, Import, Letter or Credit, Indent, Mate's receipt, Bill of lading, Shipping order, Certificate of origin

- (a) International Trade - Concept and Benefits
- (b) Export Trade - Meaning, objective and procedure of Export Trade
- (c) Import Trade - Meaning, objective and procedure: Meaning and functions of import trade; purpose and procedure.
- (d) Documents involved in International Trade : documents involved in export trade, indent, letter of credit, shipping order, shipping bills, mate's receipt, bill of lading, certificate of origin, consular invoice, documentary bill of exchange (DA/DP), specimen, importance
- (e) World Trade Organisation (WTO) meaning and objectives

### **Project Work**

**As per CBSE guidelines.**

## **Syllabus for Class-XI**

### **Subject : Economics**

#### **Rationale**

Economics is one of the social sciences which has great influence on every human beings. As economic life and the economy go through changes, the need to ground education in children's own experience becomes essential. While doing so, it is imperative to provide them opportunities to acquire analytical skills to observe and understand the economic realities.

At senior secondary state, the learners are in a position to understand abstract ideas, exercise the power of thinking and to develop their own perception. It is at this stage, the learners are exposed to the rigour of the discipline of economic in a systematic way.

The economics course are introduced in such a way that in the initial stage, the leaner are introduced to the economic realities that the nation is facing today along with some basic statistical tools to understand these broader economic realities. In the later stage, the learners are introduced to economics as a theory of abstraction. The economics courses also contain many project and activities. These will provide opportunities for the learners to explore various economics issues both from their day-to-day life and also from issues, which are broader and invisible in nature. The academic skills that they learn in these courses would help to develop the projects and activities. The syllabus is also expected to provide opportunities to use information and communication technologies to facilitare their leraning, process.

#### **Objectives**

- (1) Understanding of Basic Eocnomic concept and development of economic reasoning which the learners can applyintheir day to day life as citizen, workers and consumers
- (2) Realisation of learner's role in nation building any sentivity to economic issues the nation is facing today.

- (3) Equipment with basic tools of economics and statistics to analyse economics issues. This is pertinent for those who may not pursue this course beyond Senior Secondary Stage
- (4) Development of understanding that there can be more than one view on any economic issue and necessary skills.

**Recommended Books :** (1) **Statistics for Economics (N.C.E.R.T)**  
 (2) **Introductory Micro Economics (N.C.E.R.T)**

UNITS	Periods	Marks
<b>Part A : Statistics for Economics</b>		
(1) Introduction	7	3
(2) Collection, Organisation and Presentation of Data	27	10
(3) Statistical Tools and Interpretation Part-I	22	09
(4) Statistical Tools and Interpretation Part-II	22	09
(5) Statistical Tools and Interpretation Part-III	22	09
	<b>100</b>	<b>40</b>
<b>Part B : Introductory Micro Economics</b>		
(6) Introduction	08	04
(7) Consumer's Equilibrium and Demand	32	13
(8 & 9) Producer Behaviour and Supply	32	13
(10) Forms of Market and Price Determination under perfect competition with simple applications	28	10
	<b>100</b>	<b>40</b>
Project Work	<b>20</b>	<b>20</b>
		<b>100</b>

**Formative Assessment (25 Marks)**

1 Mark : (5 questions)

3 Marks: (2 questions)

4 Marks : (2 question)

6 Marks : (1 questions)

**Summative Assessment (80 Marks)**

1 Mark : (20 questions)

3 Marks : (4 questions)

4 Marks : (6 questions)

6 Marks : (4 questions)

**Economics (Code No. : 030) Class : XI (2019-20)**

**Marks: 80**

**Duration: 3 hrs.**

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

There will be **Internal Choices** in questions of 1 mark, 3 marks, 4 marks and 6 marks in both sections (A & B). In all, total 8 internal choices.

### **Part A : Statistics for Economics**

#### **UNIT - 1: Introduction, Collection of Data**

**Technical Words :** Economics, Scarcity, Statistics, Economic activity, Production, Consumption, Exchange, Distribution.

What is Economics?

Meaning, scope, functions and importance of statistics in Economics

#### **Unit-II Collection, Organization and Presentation of Data**

**Technical words :** Primary data, Secondary data, Census, NSSO, Table, Diagram, Line graph, Histogram, Polygon.

- (a) **Collection of data-sources of data-** Primary and Secondary; how basic data is collected with concept of sampling and non sampling errors; methods of collecting data; some important sources of secondary data; Census of India and National Sample Survey Organization.
- (b) **Organization of Data :** Meaning and types of variables, Frequency Distribution.
- (c) **Presentation of Data :** Tabular Presentation and Diagrammatic Presentation of Data:
  - (i) Geometric Forms (bar diagrams and pie diagrams)
  - (ii) Frequency diagrams (Histogram, polygon and ogive)
  - (iii) Arithmetic line graphs (time series graph)

#### **Unit-III Statistical Tools and Interpretation: Part I**

**Technical words :** Mean, Median, Mode, Individual series, Discrete series, Continuous series.

Measures of central tendency-mean (Simple and Weighted), median mode (with features, merits and demerits)

#### **Unit-IV Statistical Tools and Interpretation: Part II**

**Technical words :** Absolute dispersion, Relative dispersion, Range, Mean deviation, Standard Deviation.

Measures of Dispersion - absolute dispersion (range, mean deviation and standard deviation); relative dispersion (co-efficient of mean deviation, coefficient of variation) co-efficient of range, quartile deviation Lorenz Curve : Meaning, construction and application

#### **Unit-V Statistical Tools and Interpretation : Part III**

**Technical words :** Correlation, Scatter diagram, Index number, Wholesale price Index, Consumer price index, Index of industrial production, Inflation. Correlation-meaning and properties, scatter diagram; Measures of correlation-Karl Pearson's method (two variables ungrouped data) Spearman's rank correlation.

Introduction to Index Numbers - meaning, types -wholesale price index, consumer price index and index of industrial production, uses of index numbers, Inflation and index numbers.

### **Part -B Introductory Micro Economics**

#### **Unit VI: Introduction**

**Technical words:**

(Micro, Macro, Economy, PPC, Opportunity Cost, MOC, Positive Economics, Normative Economics, Full Employment, Under utilization.)

Meaning of microeconomics and macroeconomics, positive and normative economics What is an economy? Central problems of an economy : what, how



and for whom to produce; concepts of production possibility frontier and opportunity cost.

### **Unit VII: Consumer's Equilibrium and Demand**

#### **Technical words:**

(Utility, Cardinal, Ordinal, Law of Equi Marginal Utility, Indifference Curve, Monotonic Preference, MRS, Budget Line, Increase in Demand, Extension in demand, Decrease in demand, Contraction in demand, Elasticity, Expenditure.)  
Consumer's equilibrium - meaning of utility, marginal utility, law of diminishing marginal utility, conditions of consumer's equilibrium using marginal utility analysis.

Indifference curve analysis of consumer's equilibrium-the consumer's budget (budget set and budget line), preferences of the consumer (indifference curve, indifference map) and conditions of consumer's equilibrium.

Demand, market demand, determinants of demand, demand schedule, demand curve and its slope, movement along and shifts in the demand curve; price elasticity of demand - factors affecting price elasticity of demand; measurement of price elasticity of demand - percentage-change method.

### **Unit VIII: Supply**

#### **Technical words :**

(Elasticity of Supply, Law of Supply, Direct relationship, Geometric)

Supply, market supply, determinants of supply, supply schedule, supply curve, and its slope, movements along and shifts in supply curve, price elasticity of supply; measurement of price elasticity of supply - percentage-change method

## **Unit IX: Producer Behaviour**

### **Technical words:**

(Production, Cost, TVC, TFC, Revenue, Factor Inputs, Fixed Factors, Variable Factors) Production function (Short run & Long run) Total Product, Average Product and Marginal Product.

Returns to a Factor.

Cost : Short run costs - total cost, total fixed cost, total variable cost; Average fixed cost, average variable cost and marginal cost-meaning and their relationship, average cost.

Revenue - total, average and marginal revenue. (meaning and relationship)

Producer's equilibrium-meaning and its conditions in terms of marginal revenue and marginal cost.

## **Unit X: Forms of Market and Price Determination under Perfect Competition with simple applications.**

### **Technical words:**

(Perfect Competition, Monopoly, Monopolistic Competition, Oligopoly, Cartels, Price Discrimination)

Perfect competition - Features; Determination of market equilibrium and effects of shifts in demand and supply.

Other Market Forms - monopoly, monopolistic competition, oligopoly - their meaning and features.

Simple Applications of tools of Demand and Supply: Price ceiling, price floor.

**Syllabus for Class-XI**  
**Subject : Physical Education**

**Theory**

**Max. Marks : 70**

**Unit I : Changing Trends & Career in Physical Education**

- Meaning & definition of Physical Education
- Aims & Objectives of Physical Education
- Career Options in Physical Education
- Competition in various sports at national and international level
- Khelo-India Program

**Practical** - General fitness - warming up and cooling down.

**Unit II : Olympic Value Education**

- Olympics, Paralympics and Special Olympics
- Olympic Symbols, Ideals, Objectives & Values of Olympism.
- International Olympic Committee
- Indian Olympic Association

**Practical** - General fitness - jogging, stretching exercises.

**Unit III : Physical Fitness, Wellness & Lifestyle**

- Meaning & Importance of Physical Fitness, Wellness & Lifestyle
- Components of physical fitness and Wellness
- Components of Health related fitness

**Practical** - Sprint, continues running

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

- Aims & objectives of Adaptive Physical Education
- Organization promoting Adaptive Sports (Special Olympics Bharat;

Paralympics; Deaflympics)

- Concept and need of Integrated Physical Education
- 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)

**Practical** - Throw ball, sit and reach test

### **Unit V : Yoga**

- Meaning & Importance of Yoga
- Elements of Yoga
- Introduction - Asanas, Pranayam, Meditation & Yogic Kriyas
- Yoga for concentration & related Asanas (Sukhasana; Tadasana; Padmasana & Shashnkasana, Naukasana, Vrikshasana (Tree pose), Garudasana (Eagle pose)
- Relaxation Techniques for improving concentration - Yoga-nidra

**Practical** - Practice of Yoga asana

### **Unit VI : Physical Activity & Leadership Training,**

- Leadership Qualities & Role of a Leader
- Creating leaders through Physical Education
- Meaning, objectives & types of Adventure Sports (Rock Climbing, trekking, River Rafting, Mountaineering, Surfing and Para Gliding)
- Safety measures to prevent sports injuries

**Practical** - Practices of different types of Asana. Game-Volleyball.

### **Unit VII : Test, Measurement & Evaluation**

- 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.

**Practical** - Broad jump, Game-Volleyball-fundamental skills of Volleyball and dimension, rules and regulations

### **Unit VIII : Fundamental of Anatomy, Physiology & Kinesiology in Sports**

- 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

**Practical** - Game-Badminton-fundamental skills

### **Unit IX : Psychology & Sports**

- Definition & Importance of Psychology in Phy. Edu. & Sports
- Define & Differentiate Between Growth & Development
- Developmental Characteristics At Different Stage of Development
- Adolescent Problems & Their Management

**Practical** - Game - Badminton - dimension, rules of the game

### **Unit X : Training and Doping in Sports**

- 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

**Practical** - Practice of skill of the game

**Practical Max. Marks 30**

- |   |         |
|---|---------|
| 1. Physical Fitness Test -  | 6 Marks |
| 2. Proficiency in Games and Sports (Skill of any one Game of choice from the given list*) | 7 Marks |
| 3. Yogic Practices -  | 7 Marks |
| 4. Record File**-   | 5 Marks |
| 5. Viva Voce (Health/Games & Sports / Yoga) -   | 5 Marks |

\* Athletics, Archery, Badminton, Boxing, Chess, Judo, Shooting, Skatng, Swimming, Taekwondo, Tennis, Aerobics, Gymastics, Rope-Skipping, Yoga, Bocce & Unified Basketball (CWSN (Children with Special Needs-Divyang)

**\*\*\*Record File shall include :**

Practical-1 : Labelled diagram of 400 M Tack & Field with computations.

Practical-2 : Computation of BMI from family or neighbourhood & graphical representation of the data.

Practical-3 : Labelled diagram of field & equipment of any one game of your choice out of the above list.

Practical-4 : List of current National Awardees (Dronacharya Award, Arjuna Award & Rajiv Gandhi Khel Ratna Award)

Practical-5 : Pictorial presentation of any five Asanas for improving concentration.

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